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Shimizu

(10) **Patent No.: US 9,684,112 B2**
(45) **Date of Patent: Jun. 20, 2017**

(54) **LIGHTING DEVICE, DISPLAY DEVICE AND TELEVISION DEVICE**

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(30) **Foreign Application Priority Data**

Jun. 28, 2013 (JP) 2013-136240

(51) **Int. Cl.**

F21V 8/00	(2006.01)
H04N 9/31	(2006.01)
G02F 1/1333	(2006.01)

(52) **U.S. Cl.**
CPC ***G02B 6/0031*** (2013.01); ***G02B 6/0083*** (2013.01); ***G02B 6/0085*** (2013.01);
(Continued)

(58) **Field of Classification Search**
CPC .. G02B 6/0031; G02B 6/0083; G02B 6/0085; G02B 6/0088; H04N 9/31; G02F 1/133308; G02F 2001/133314
See application file for complete search history.

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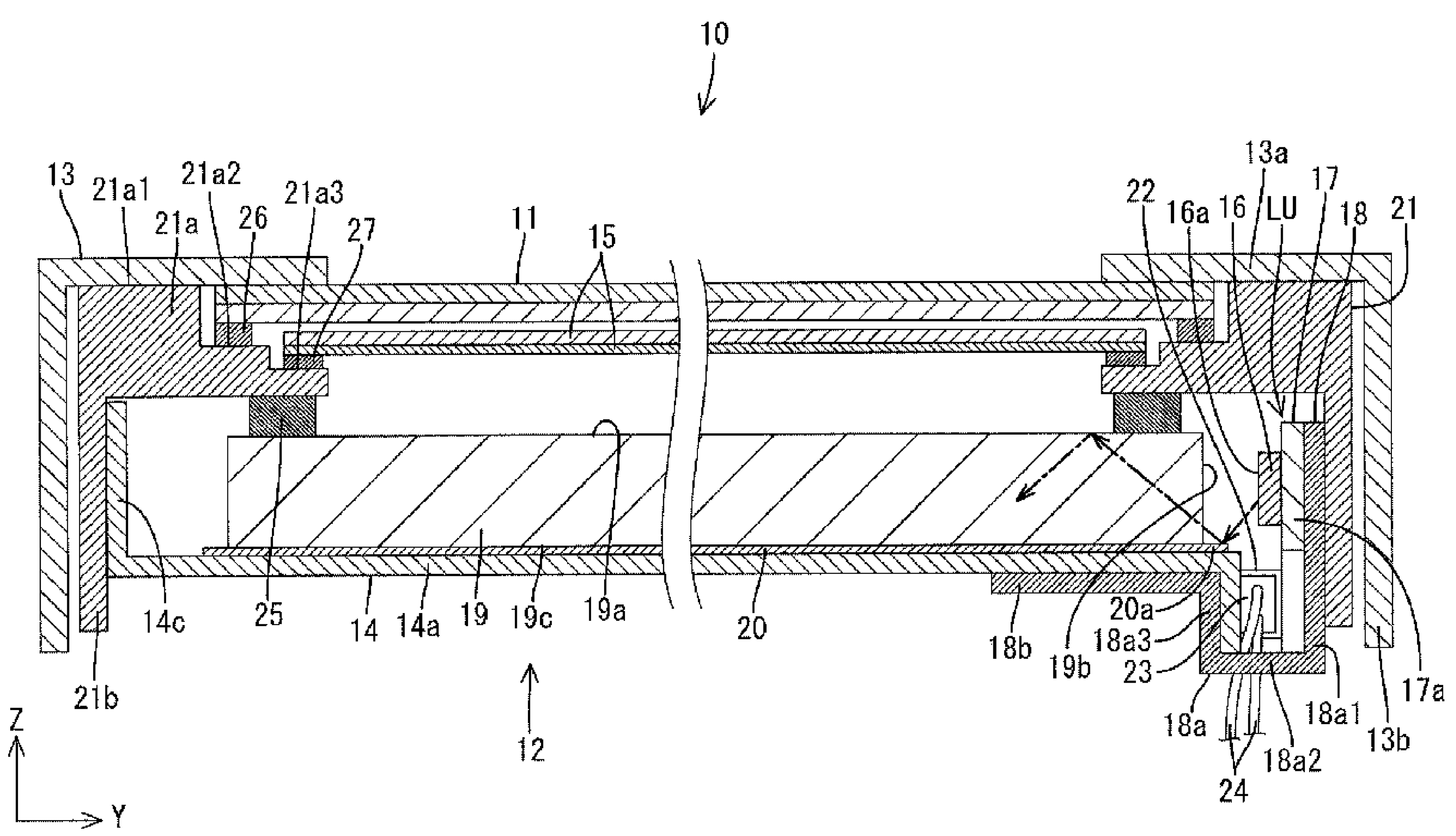
Primary Examiner — Alan Cariaso
(74) *Attorney, Agent, or Firm* — Birch, Stewart, Kolasch & Birch, LLP

(57) **ABSTRACT**

A backlight device includes an LED, a light guide plate having one edge surface as a light entrance surface, one plate surface as a light exit surface and another plate surface as an opposite plate surface, further includes a chassis having a bottom plate portion that includes a light guide plate support portion supporting the light guide plate from a side of the opposite plate surface and a light guide plate non-support portion not supporting the light guide plate from the side of the opposite plate surface, and further includes a reflection sheet having an extended reflection portion that extends closer to the LED than the light entrance surface of the light guide plate and having a cutout portion that is formed by cutting out at least a part of a portion of the extended reflection portion overlapping with the light guide plate non-support portion.

15 Claims, 29 Drawing Sheets



(52) **U.S. Cl.**
CPC ***G02B 6/0088*** (2013.01); ***H04N 9/31*** (2013.01); *G02F 1/133308* (2013.01); *G02F 2001/133314* (2013.01)

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FIG.1

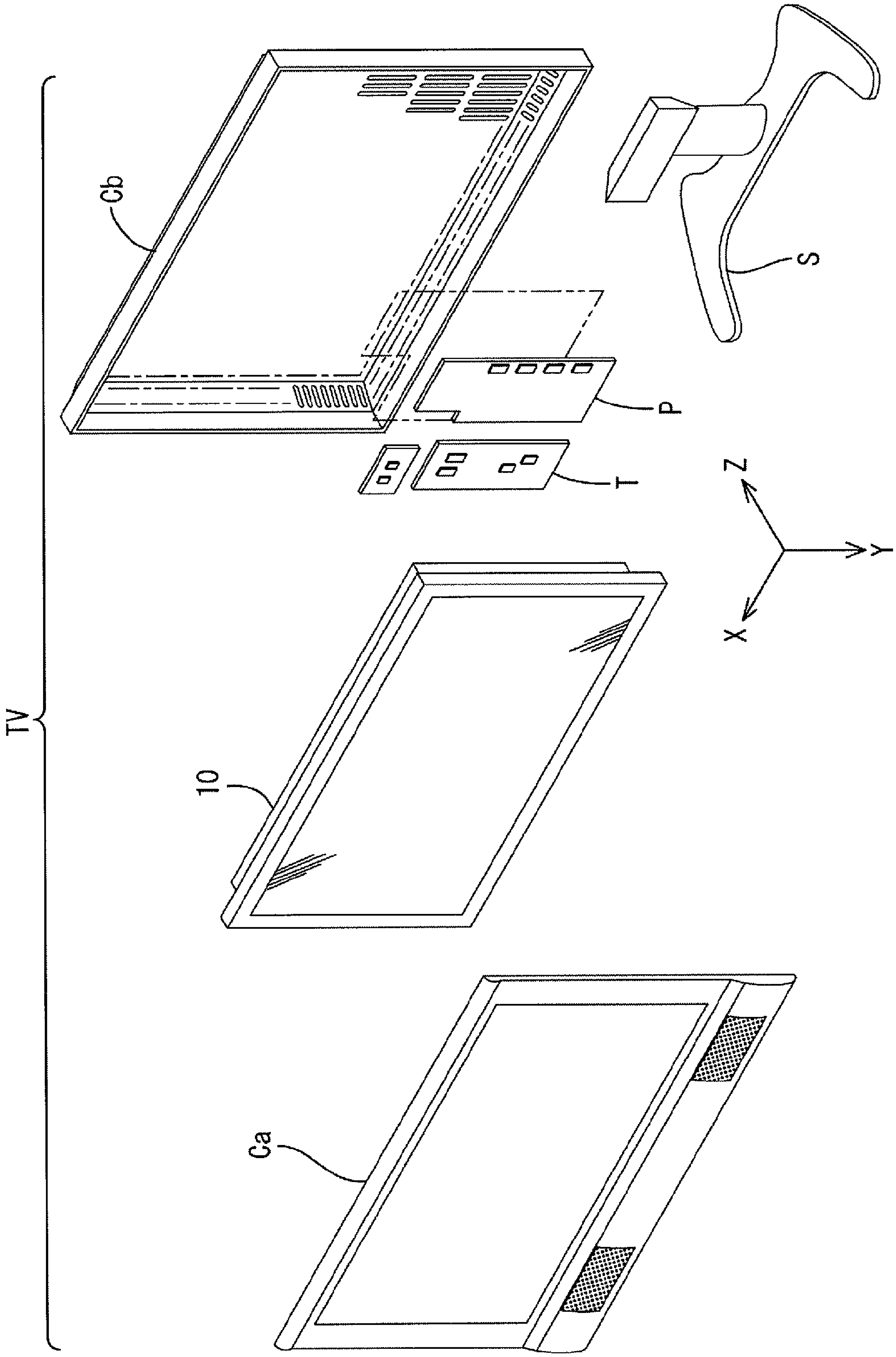
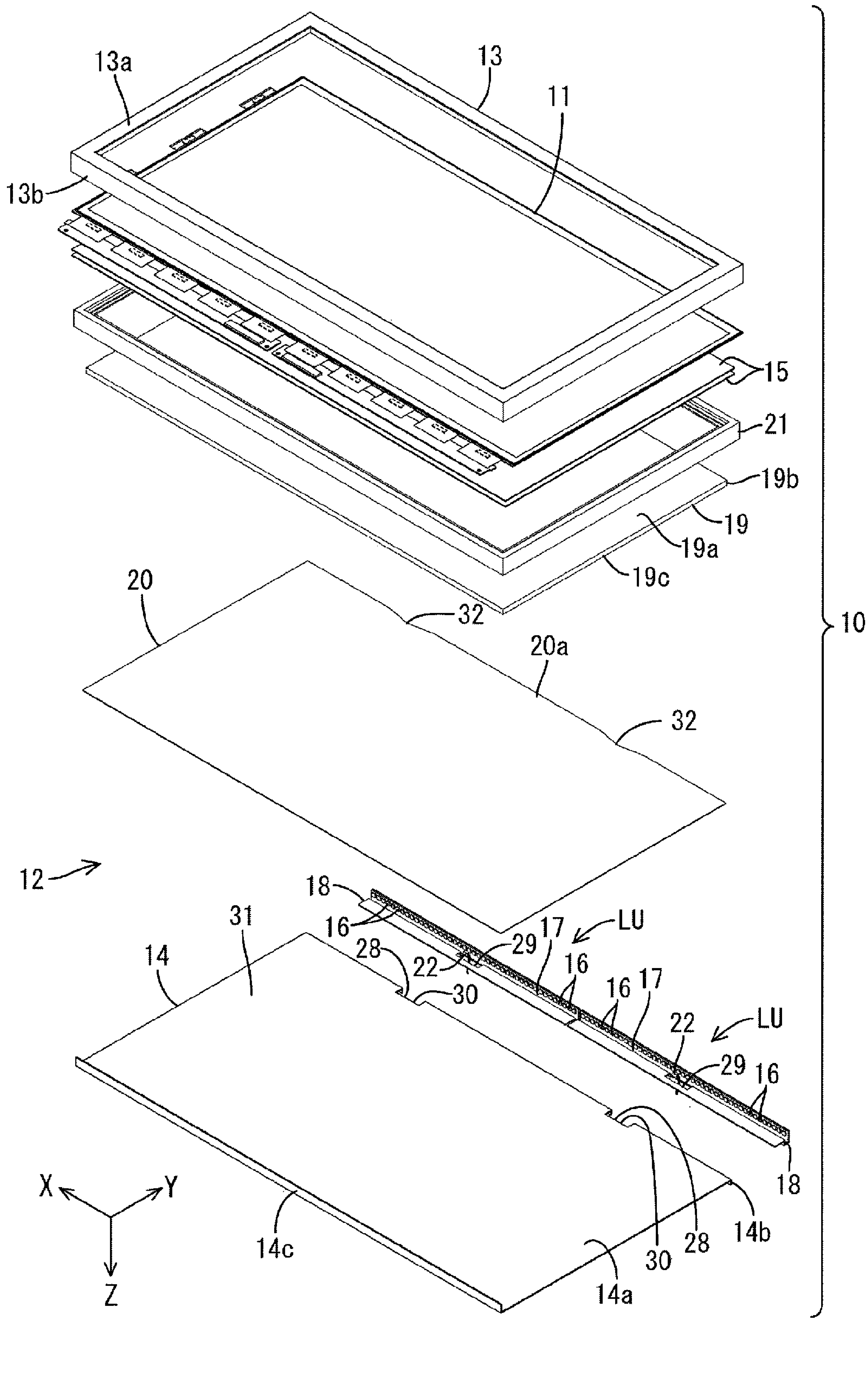


FIG.2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28
22
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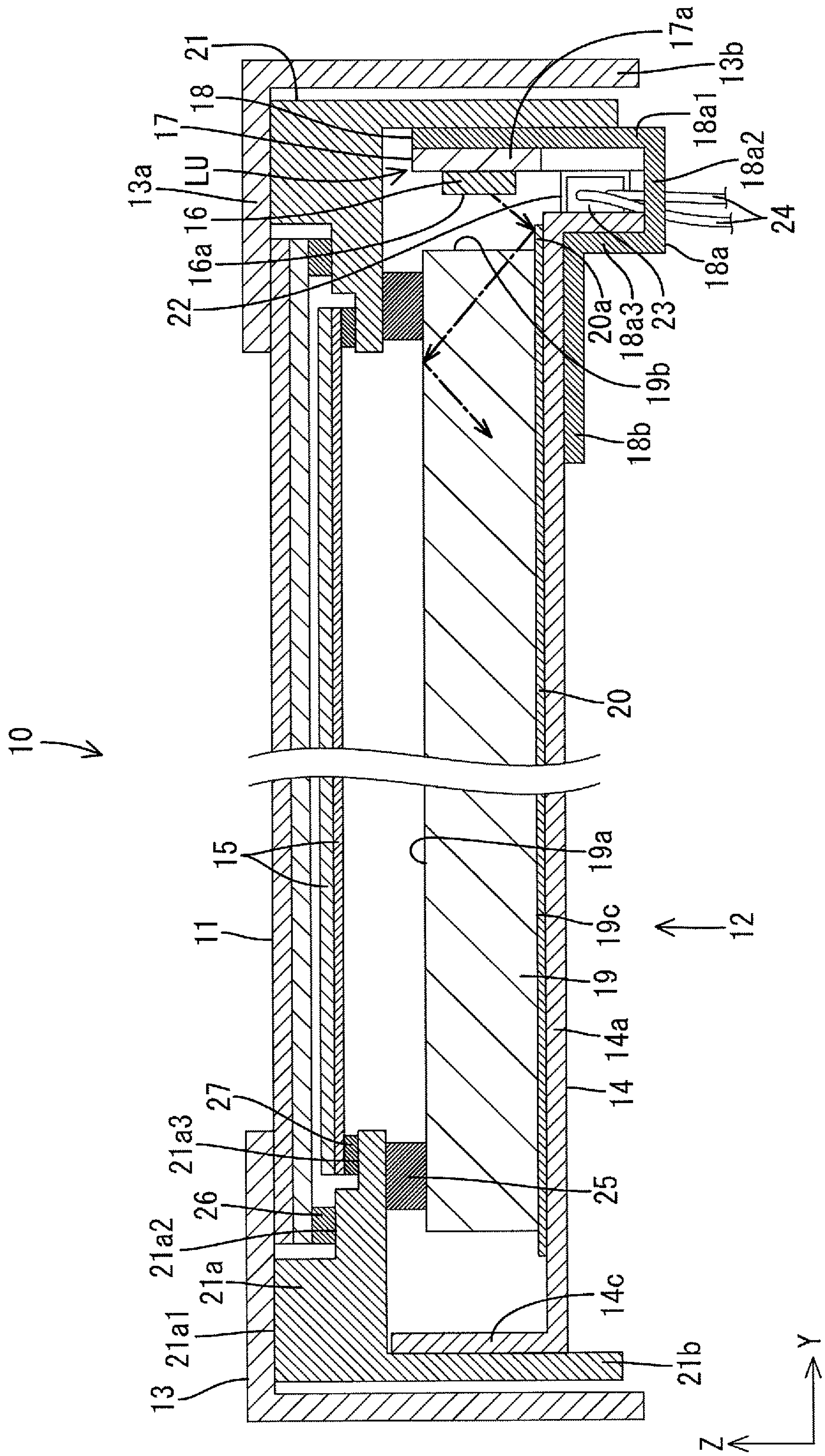
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18a3
23
19b
18b
10
20
15
19a
11
19c
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21a3
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21a2
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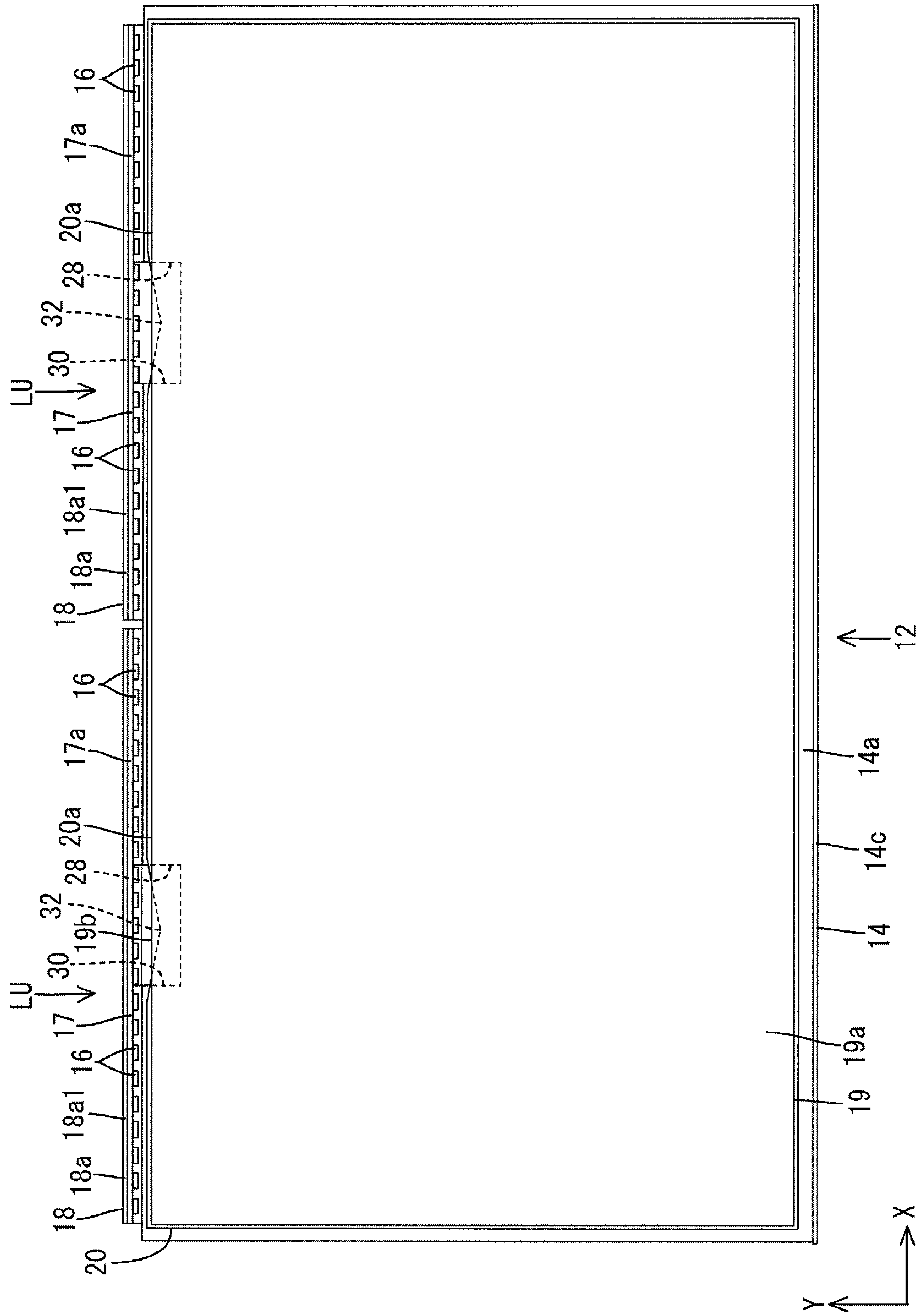
14c
21a1
21b
13
Y
Z

FIG.3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14c
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19a
19
X
Y

FIG.4

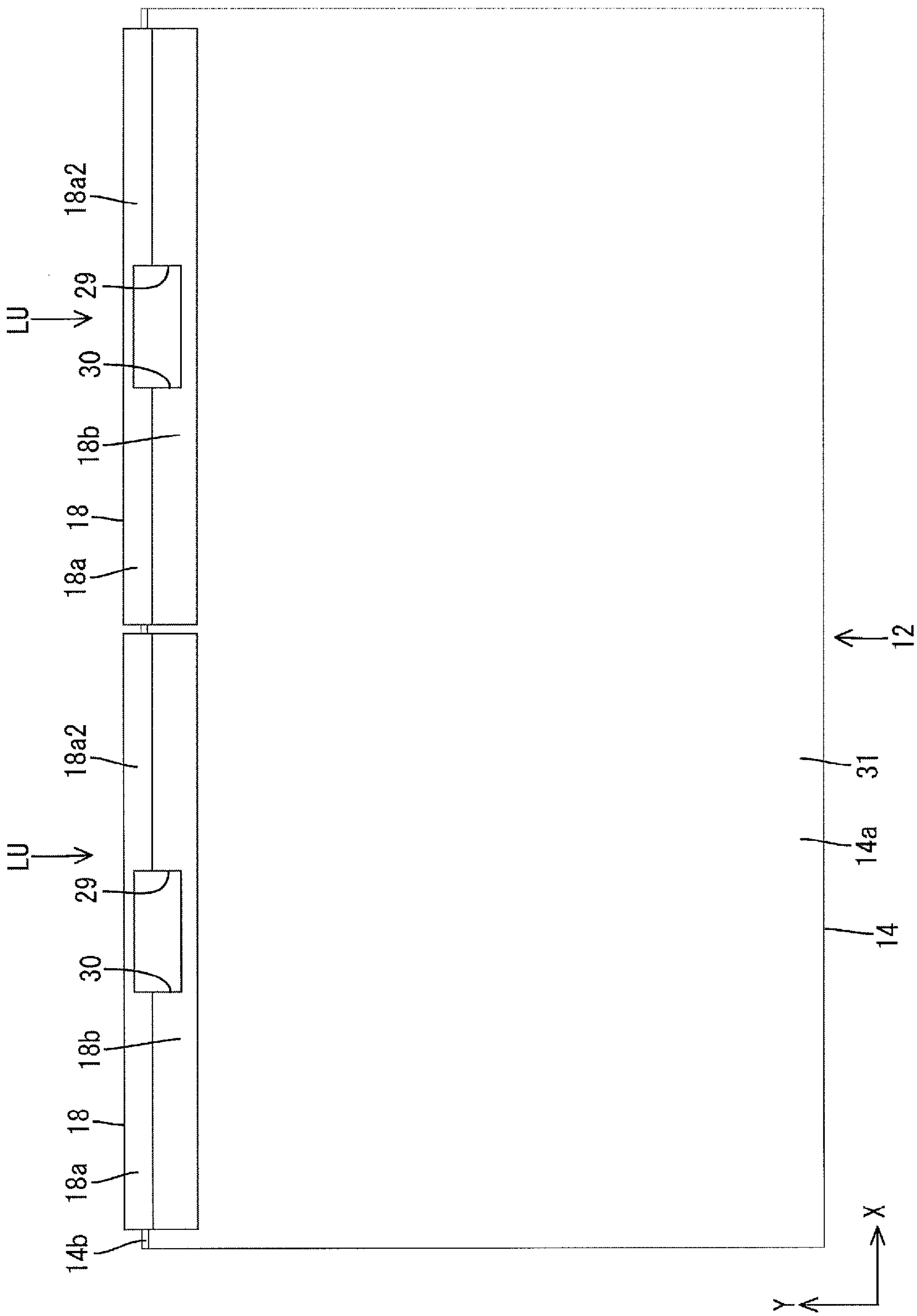
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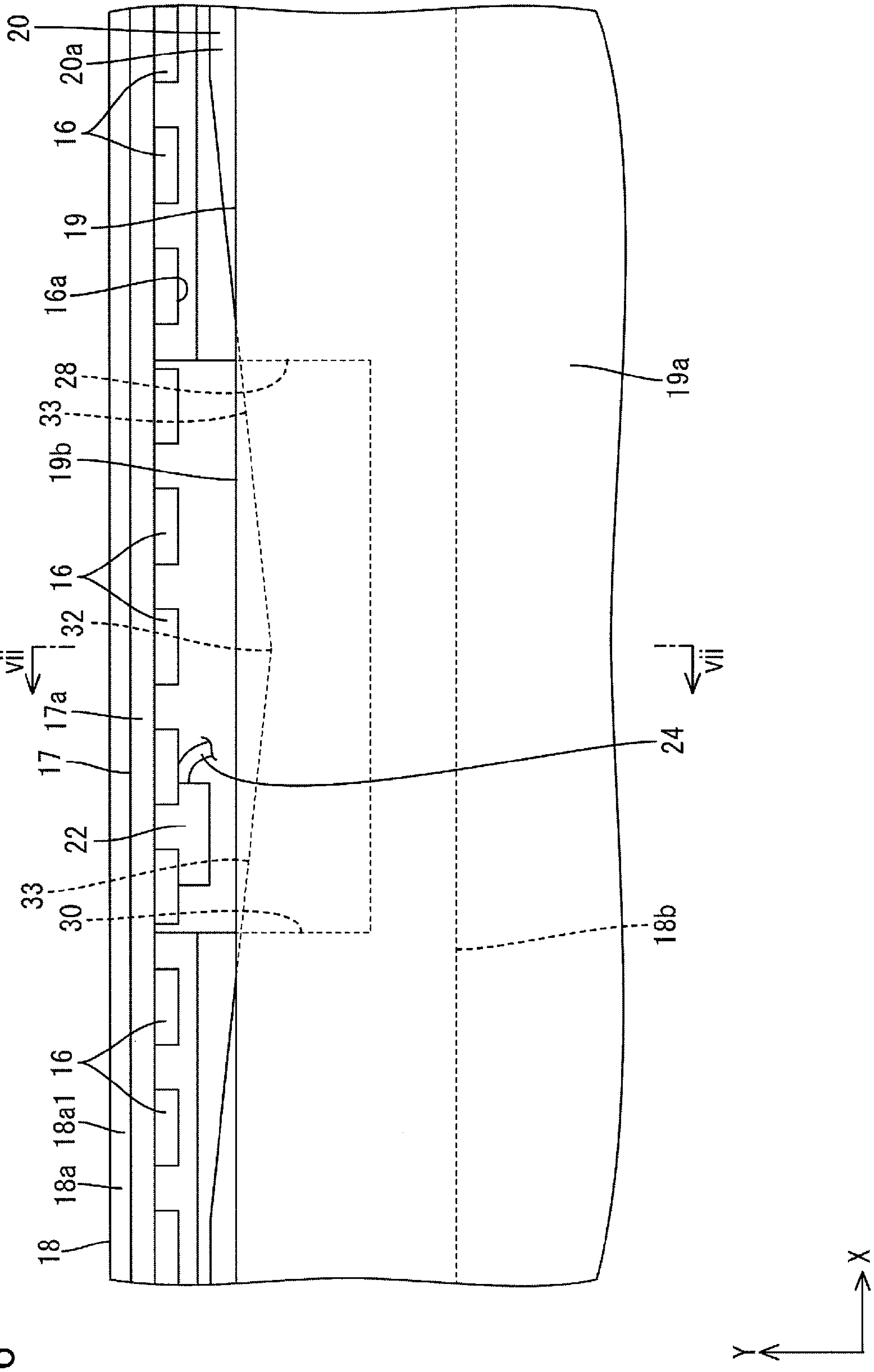
FIG.5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18a
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19a
VII
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18b
X
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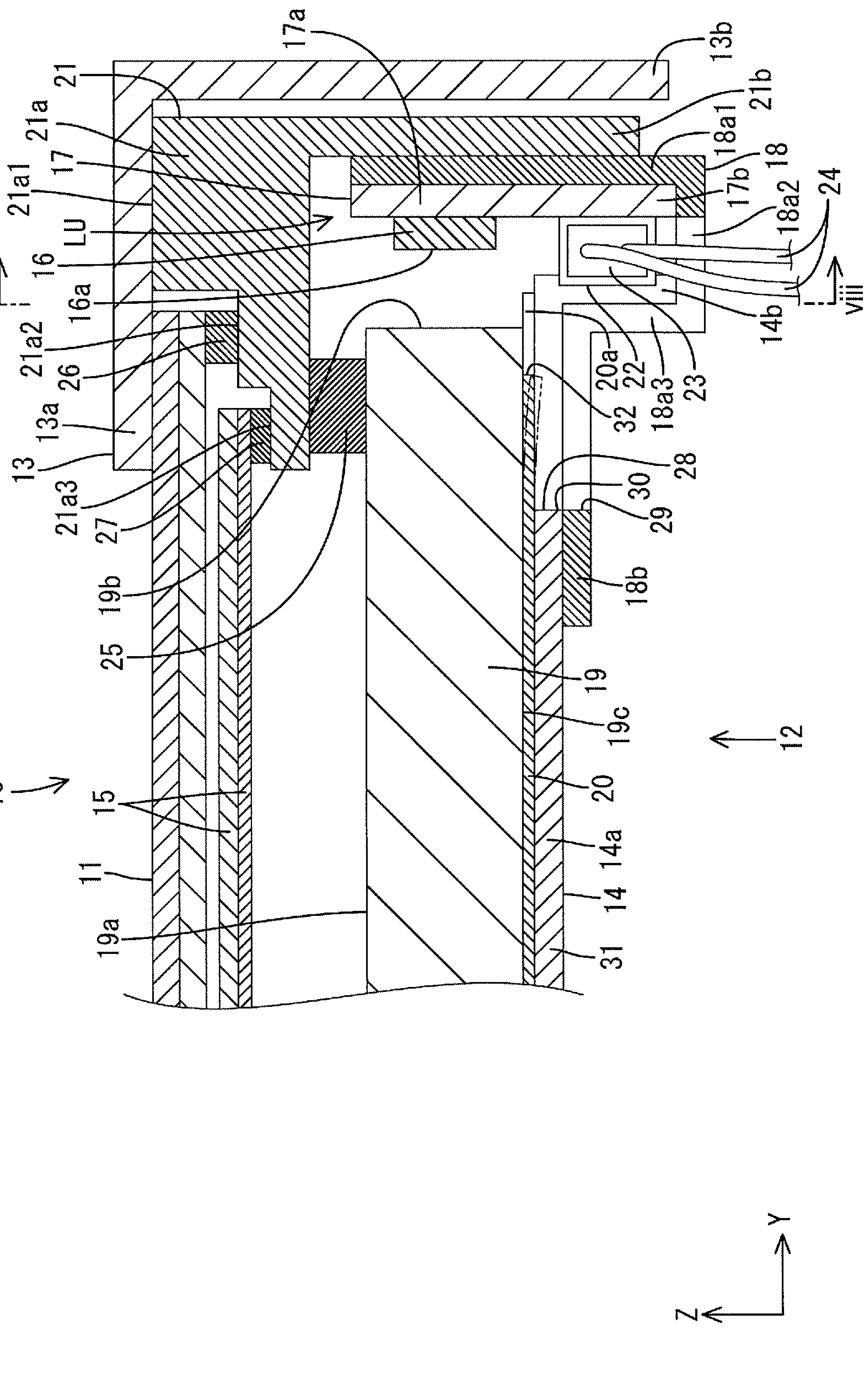
FIG.6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18a3
18b
19
19a
19b
19c
20
20a
21
21a
21a1
21a2
21a3
21b
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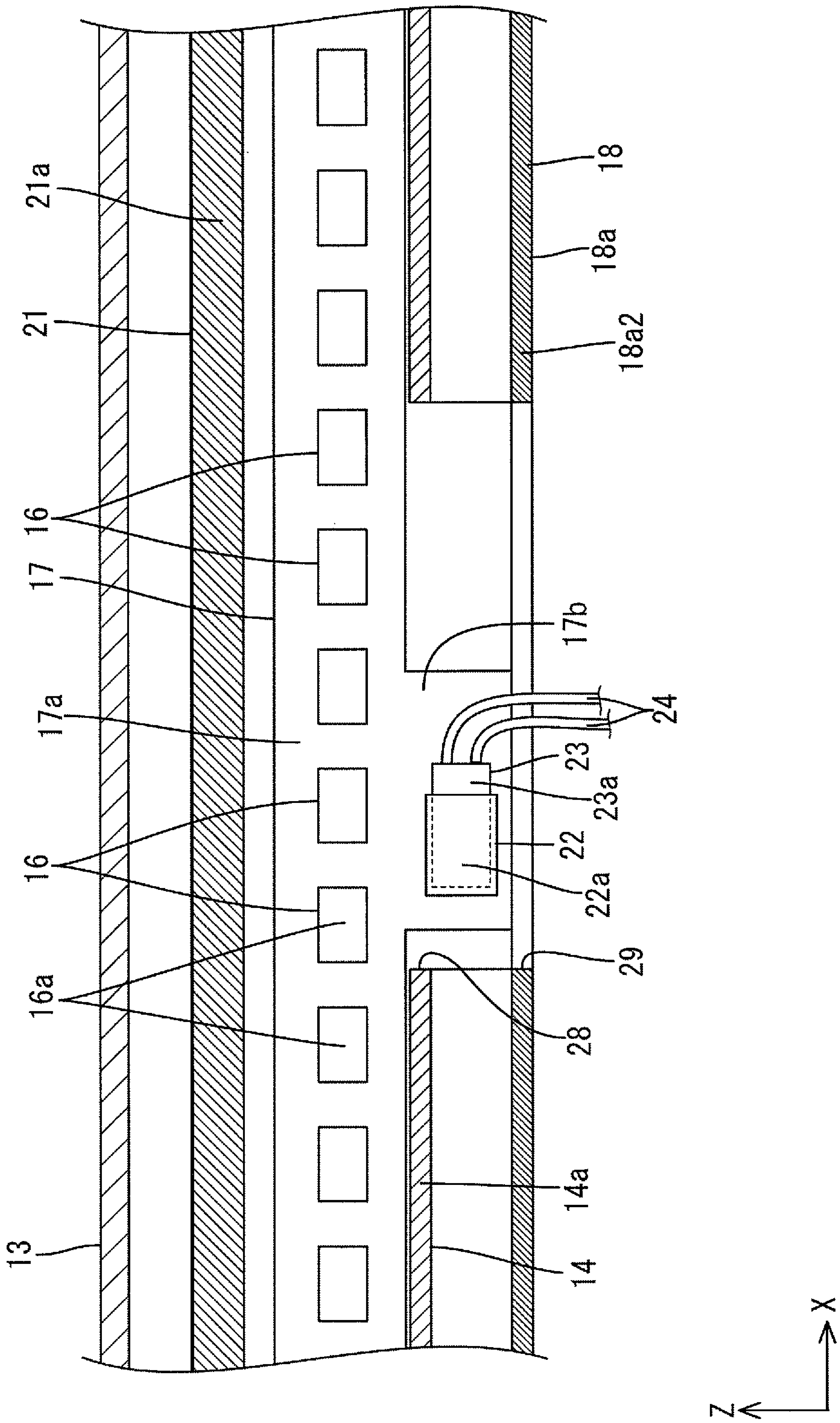
26
27
28
29
30
31
32
LU
viii
Y
Z

FIG.7

FIG.8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29
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14a
14
X
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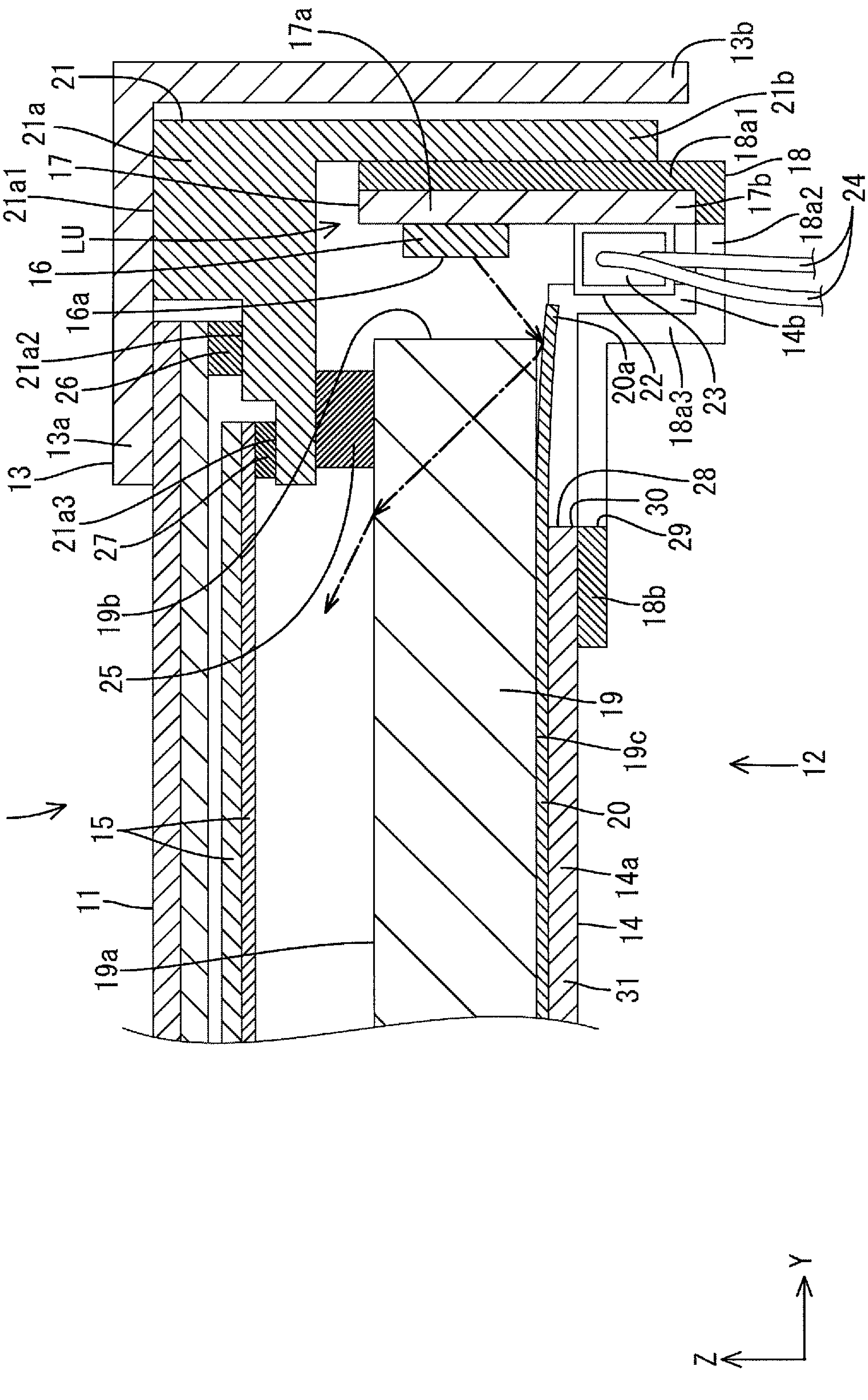
FIG.9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21a3
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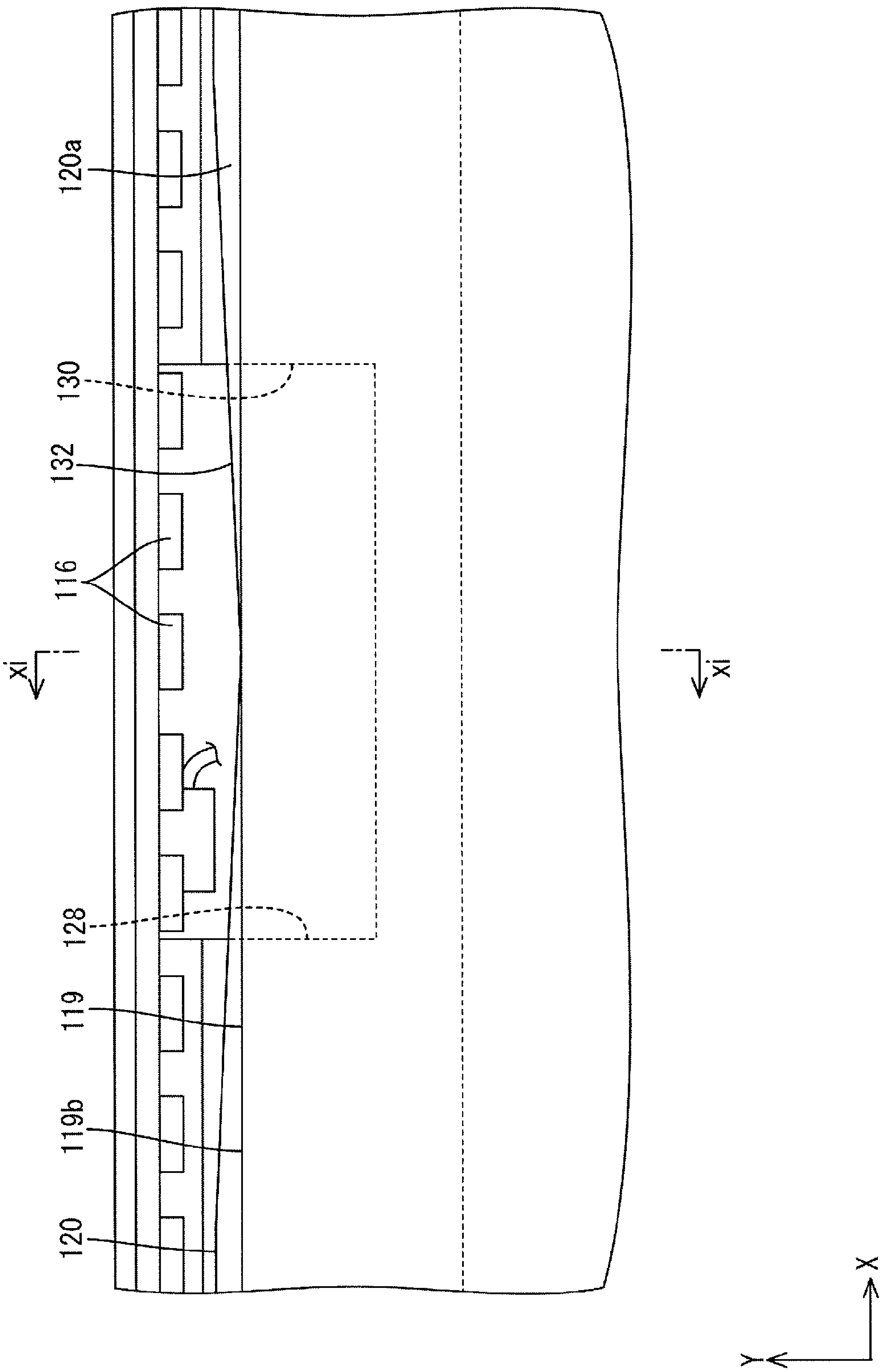
31
Y
Z

FIG.10



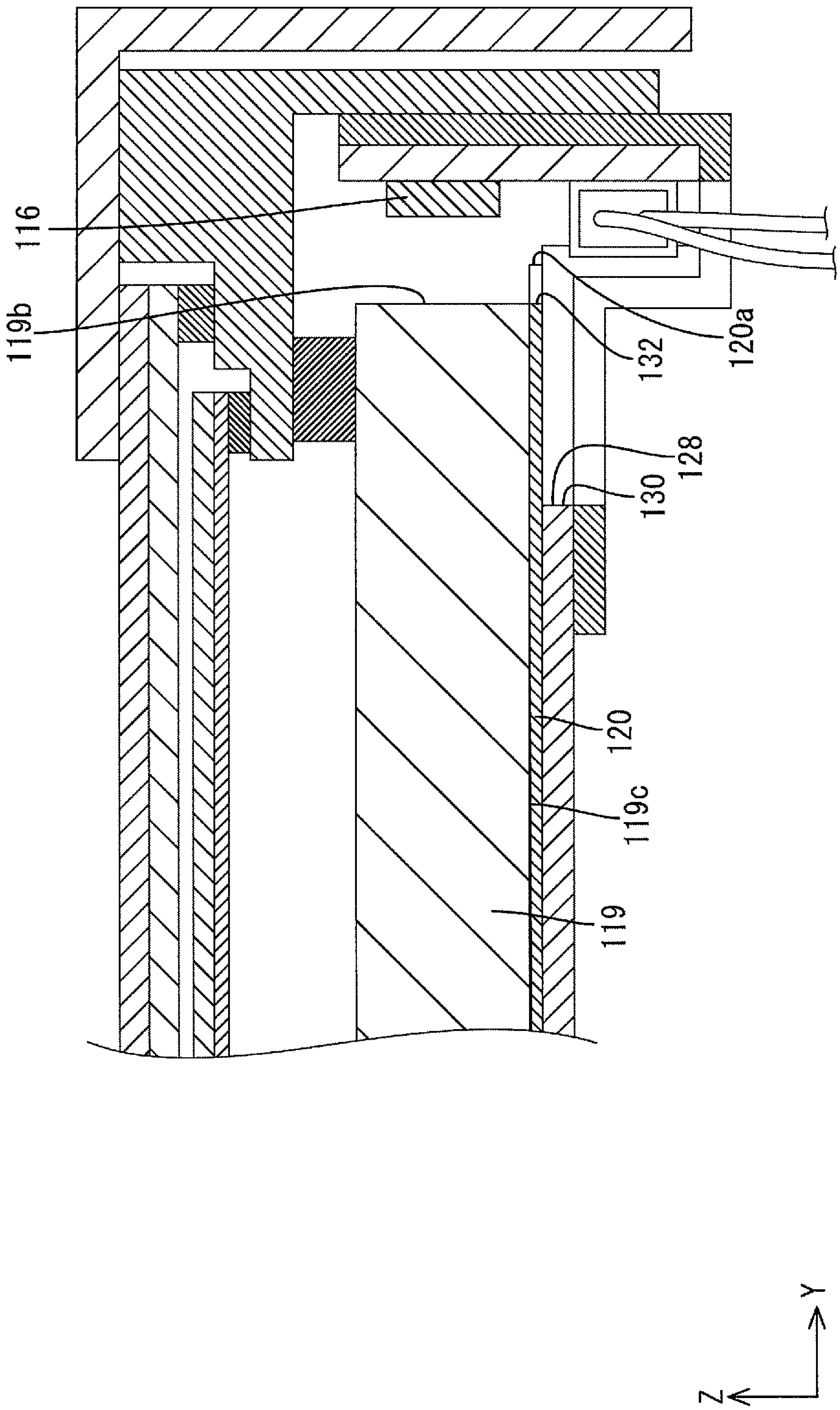
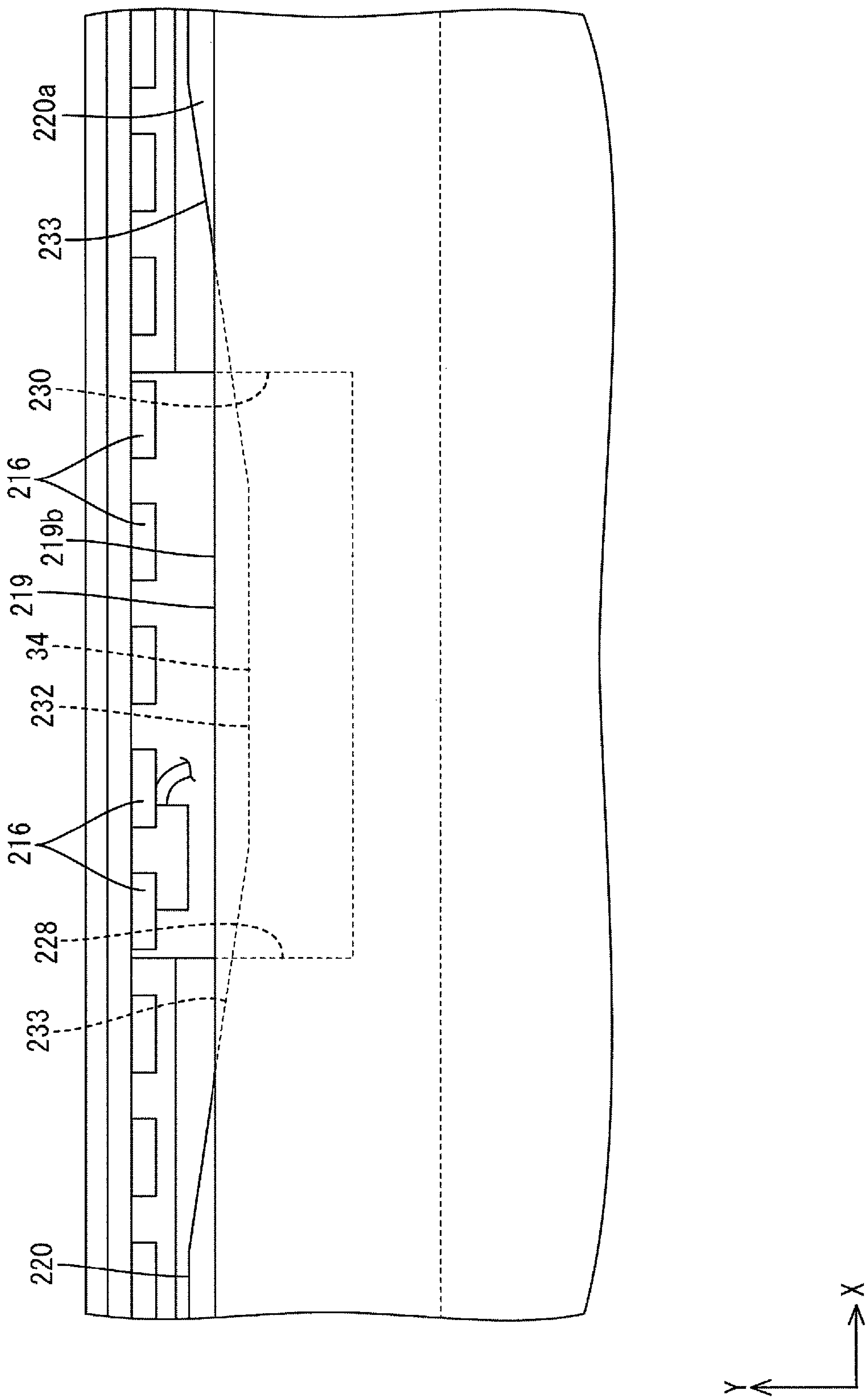


FIG.11

FIG.12



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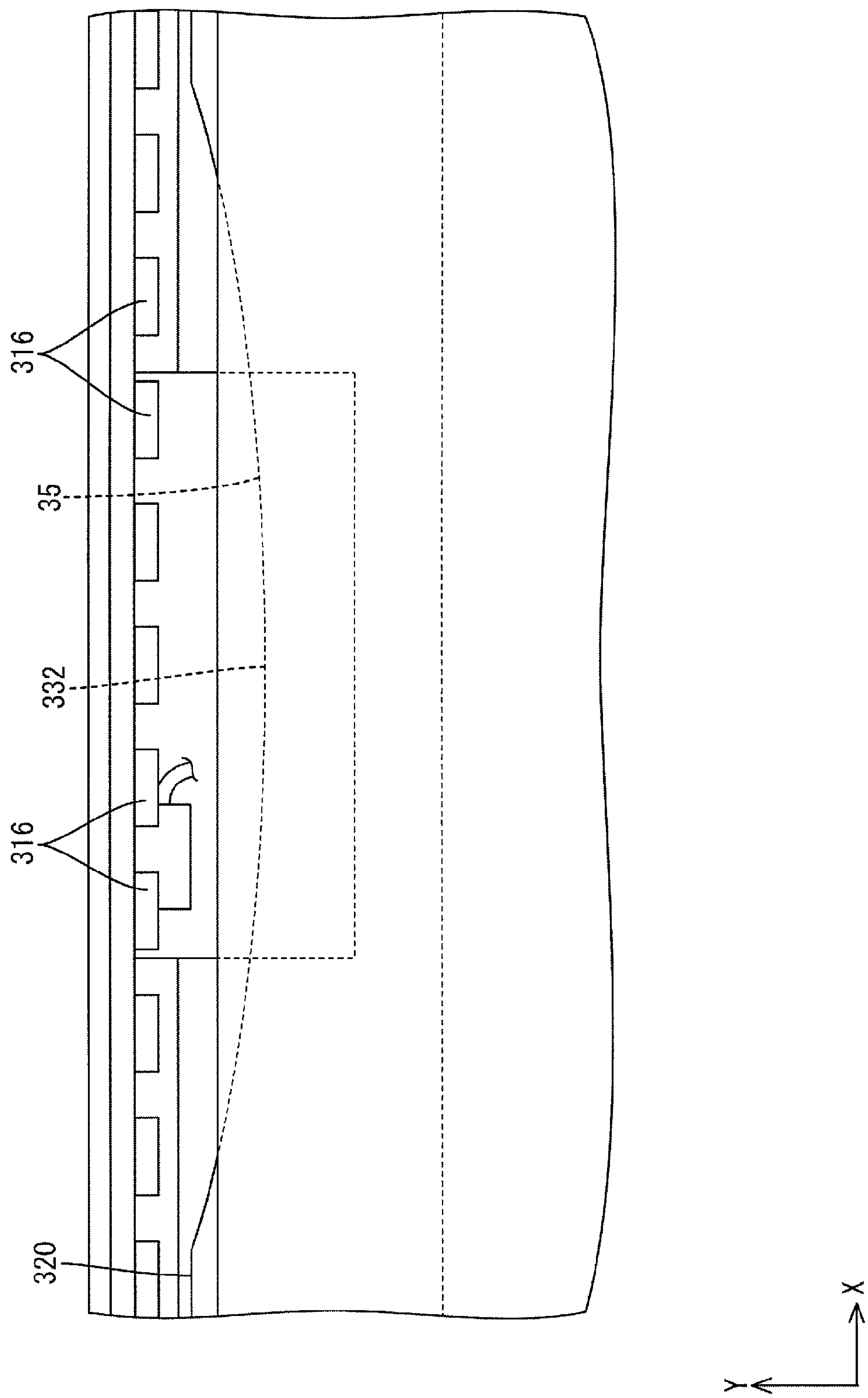

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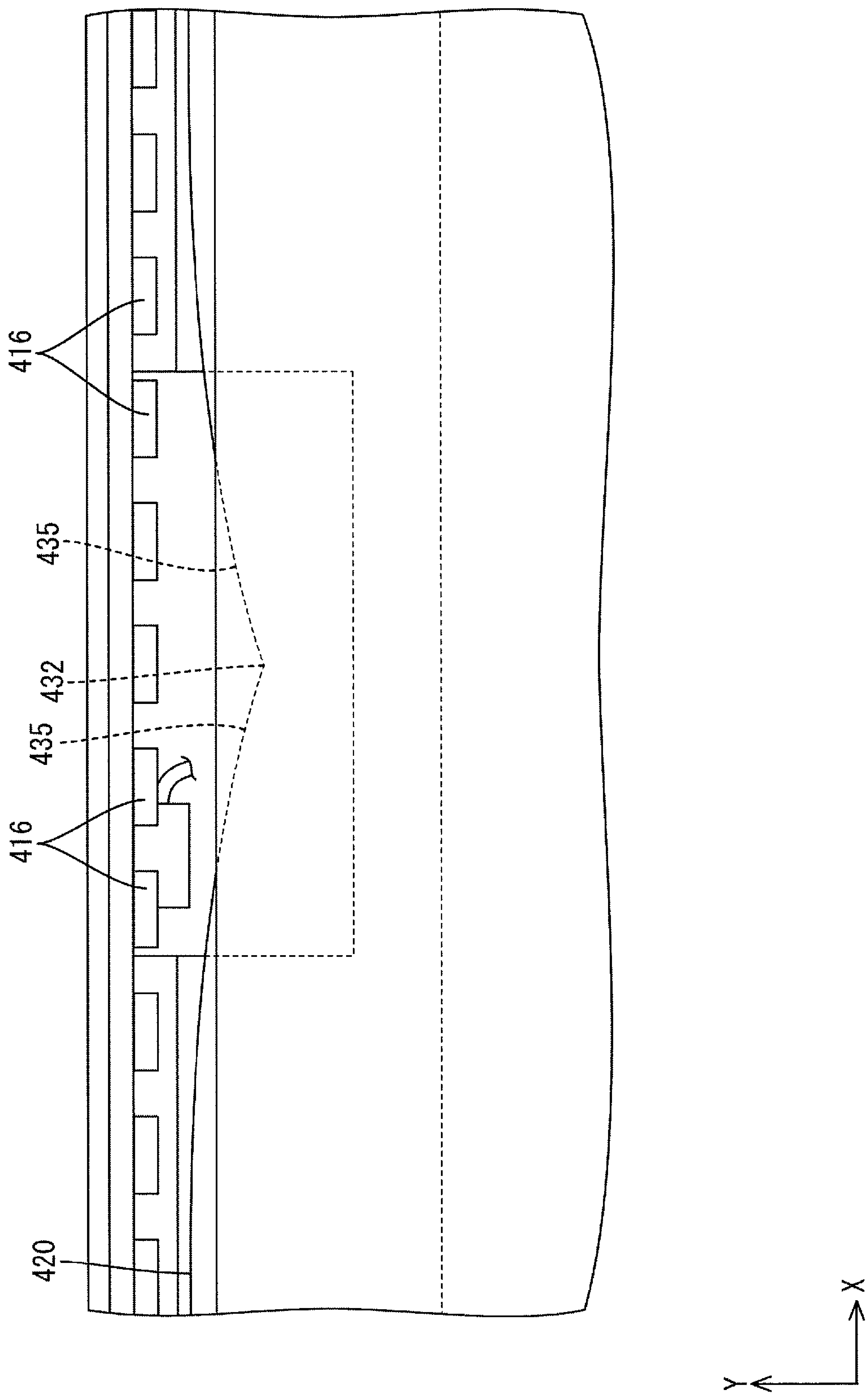

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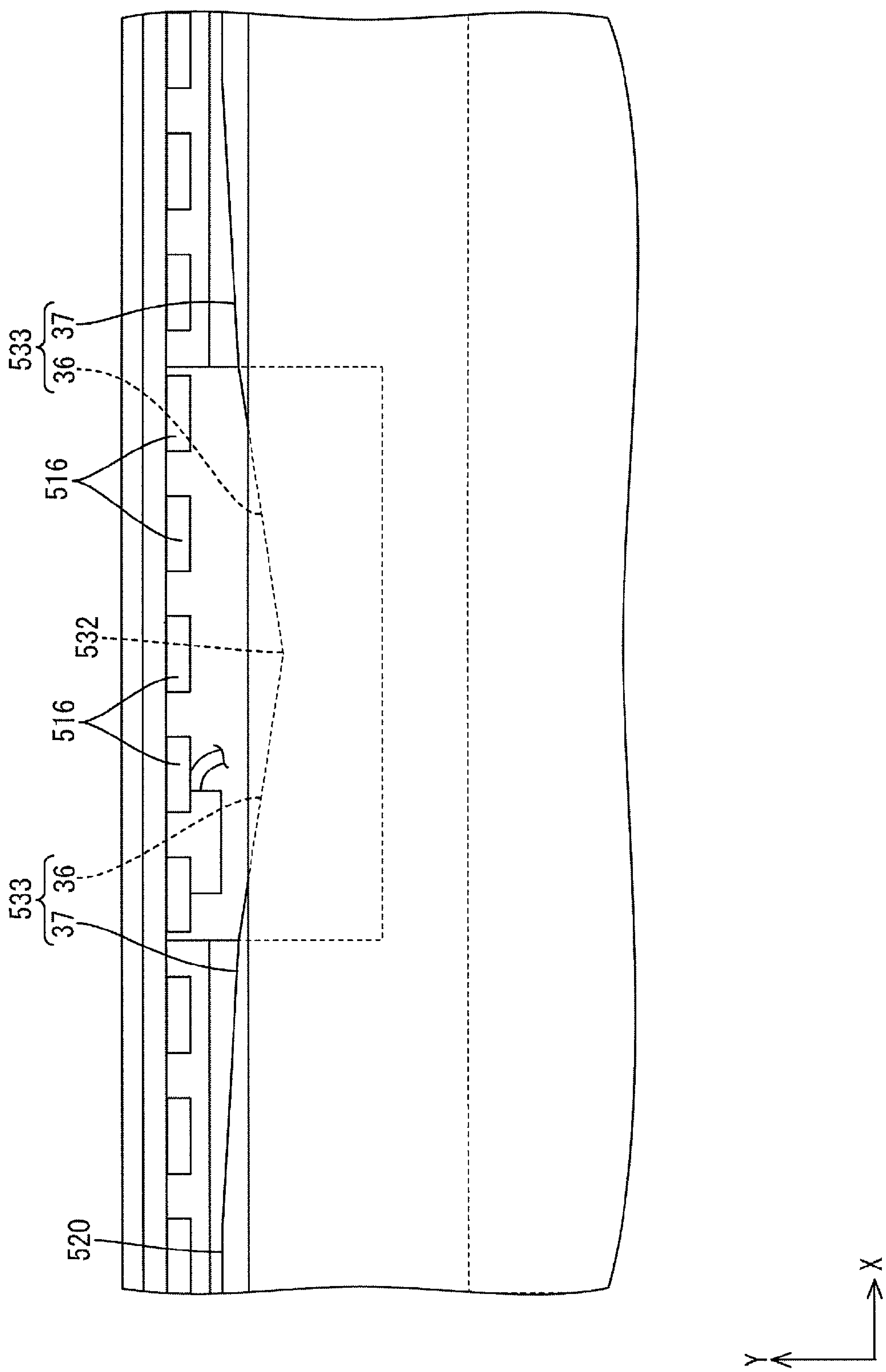

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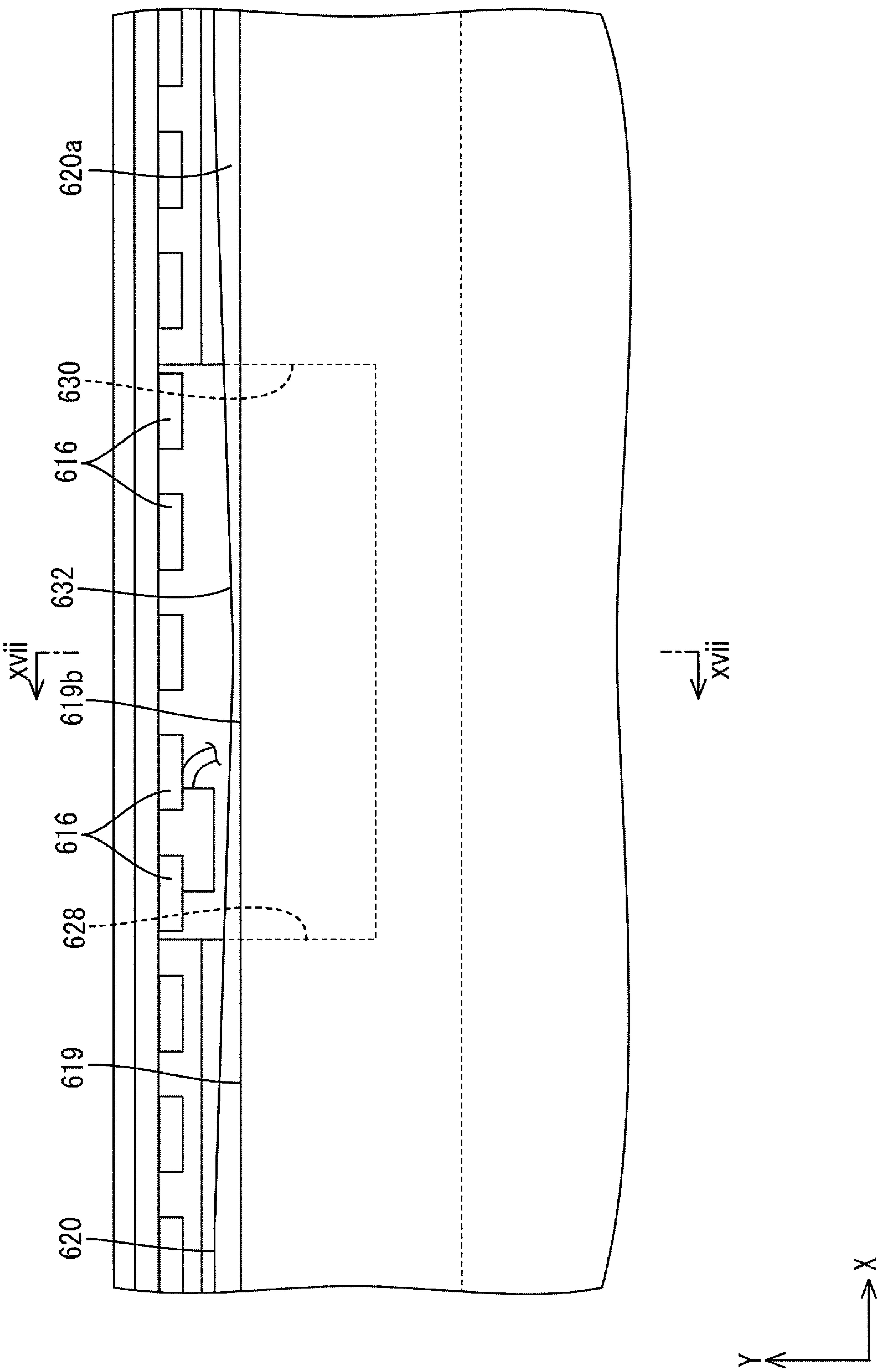

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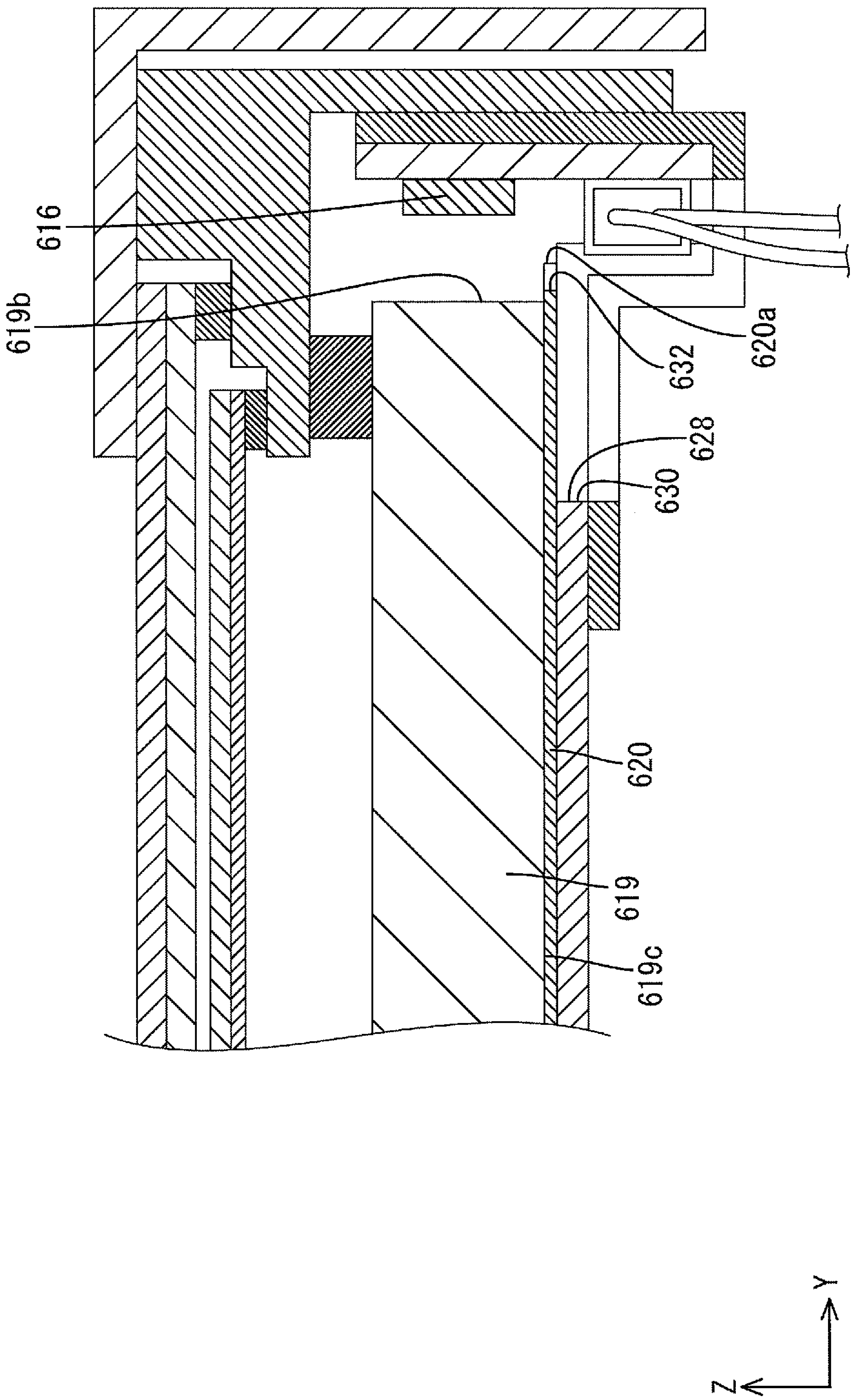

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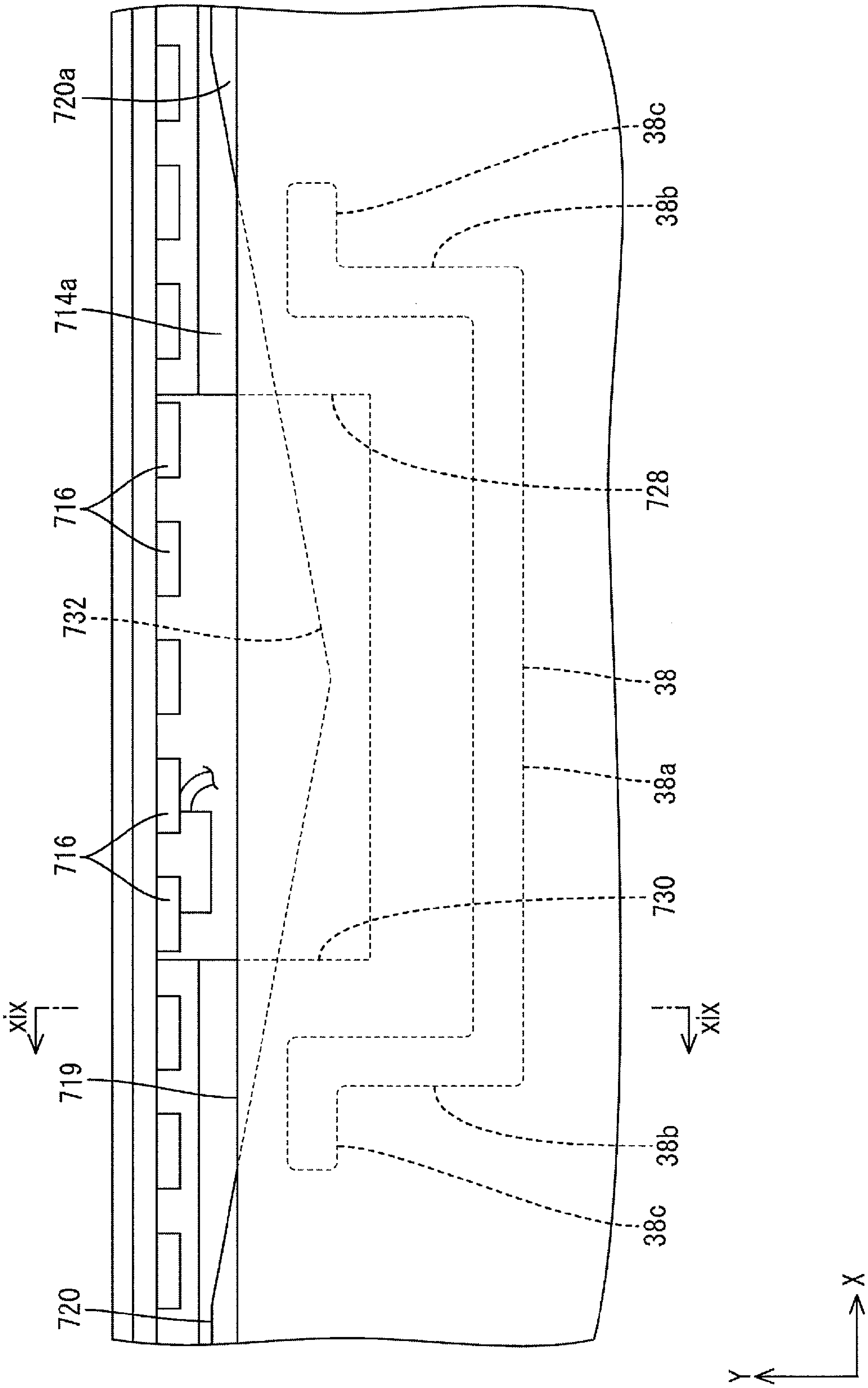
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728
38
38a
730
xix
38b
38c
X
Y

FIG.19

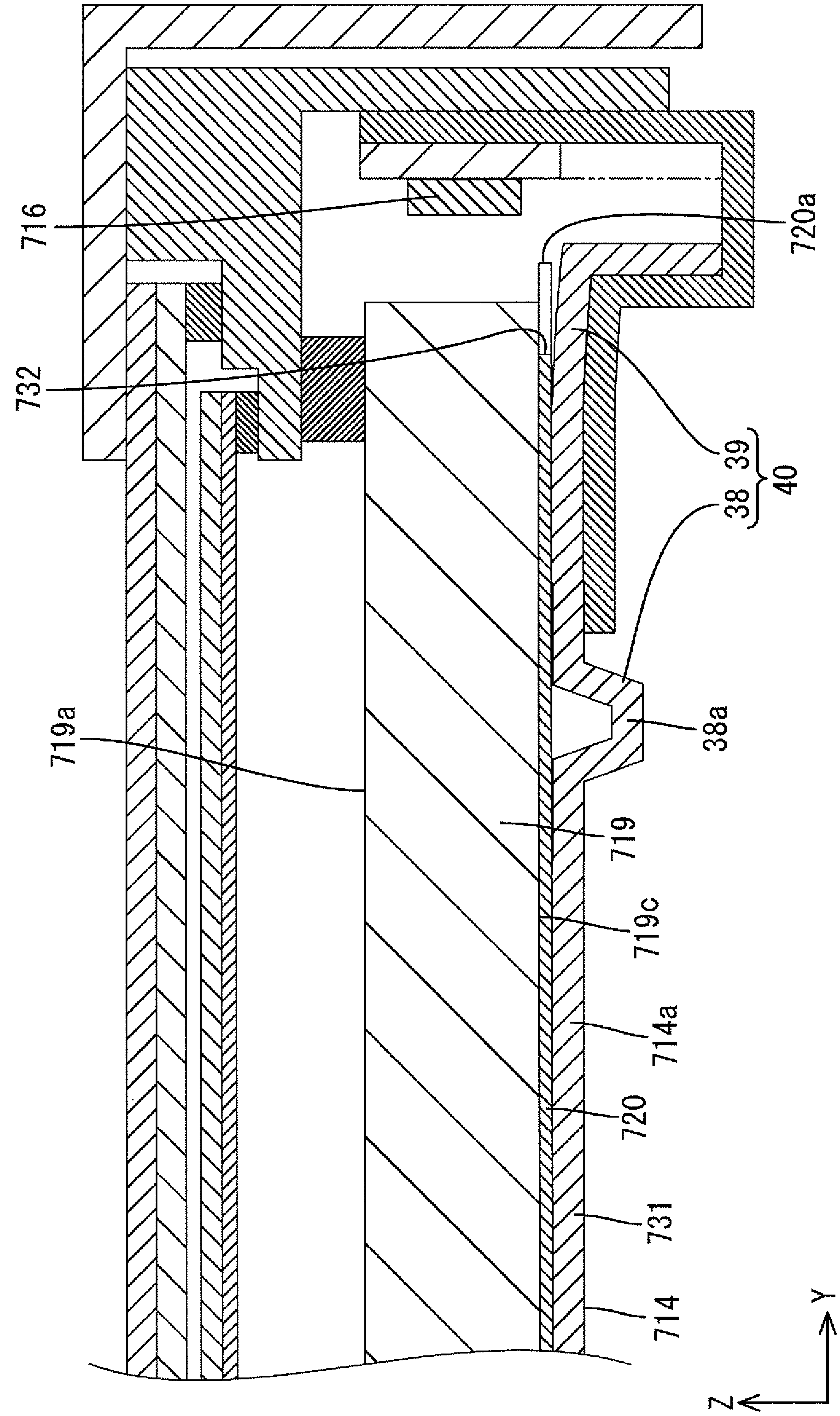
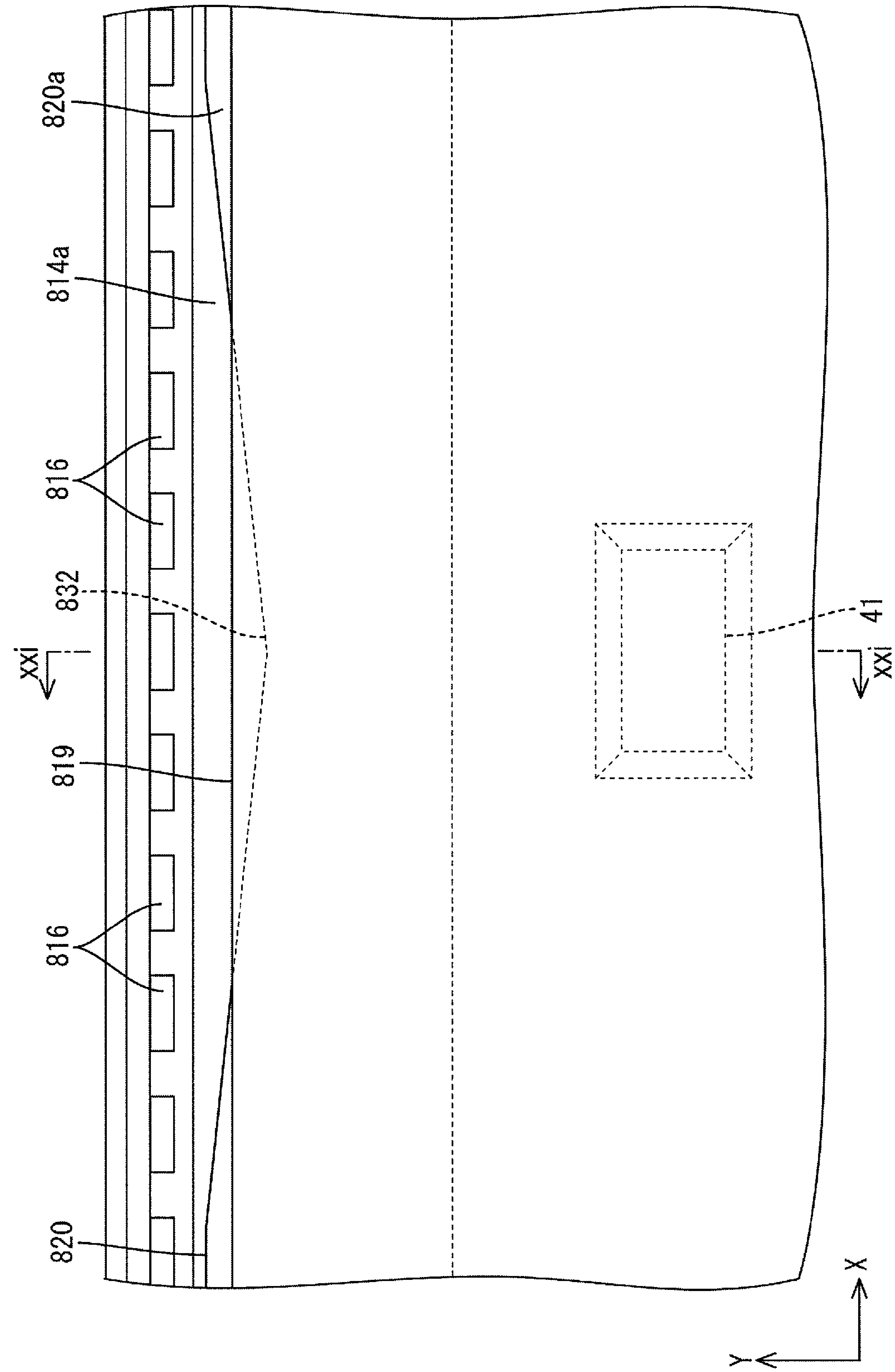


FIG.20



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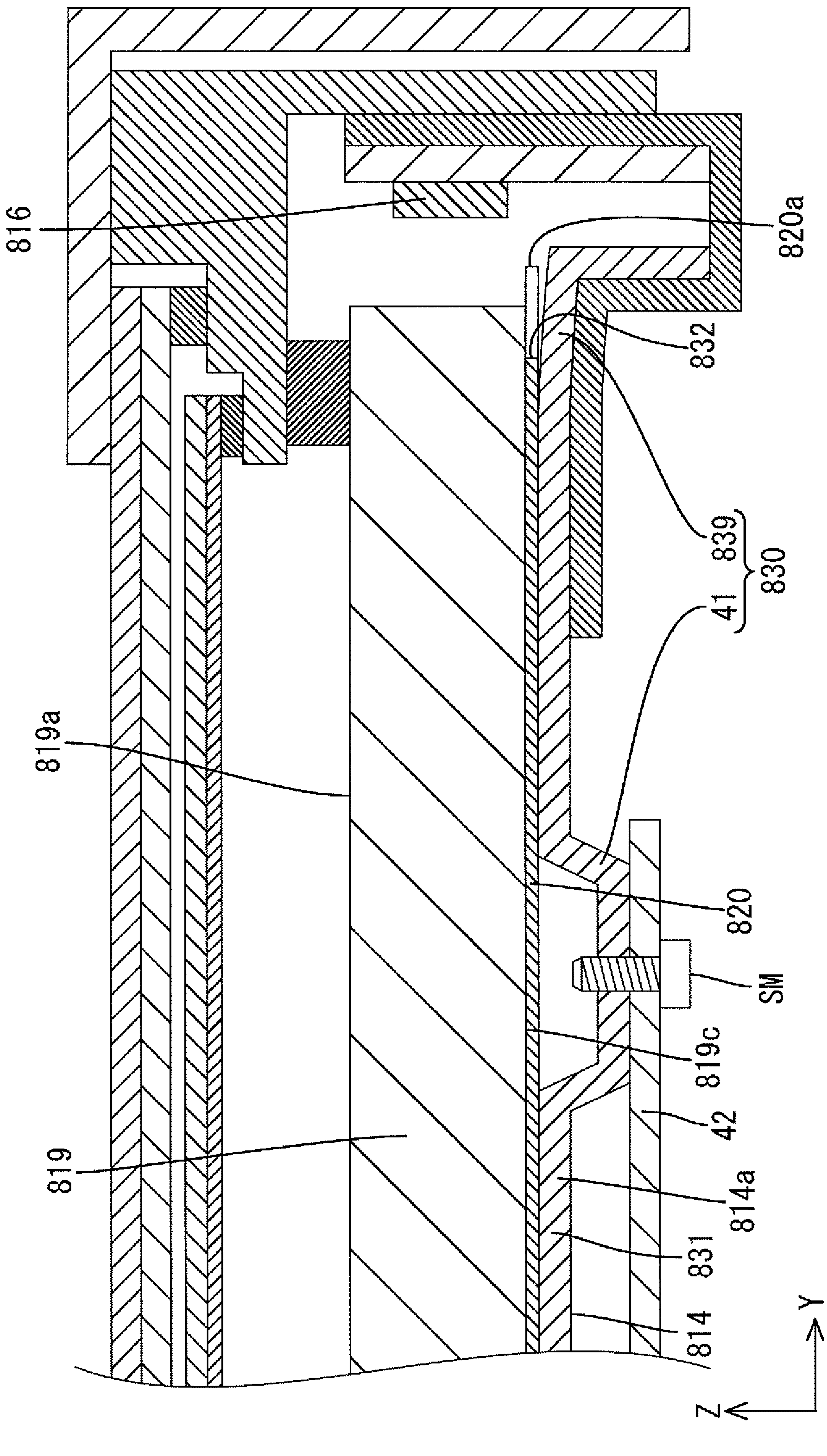

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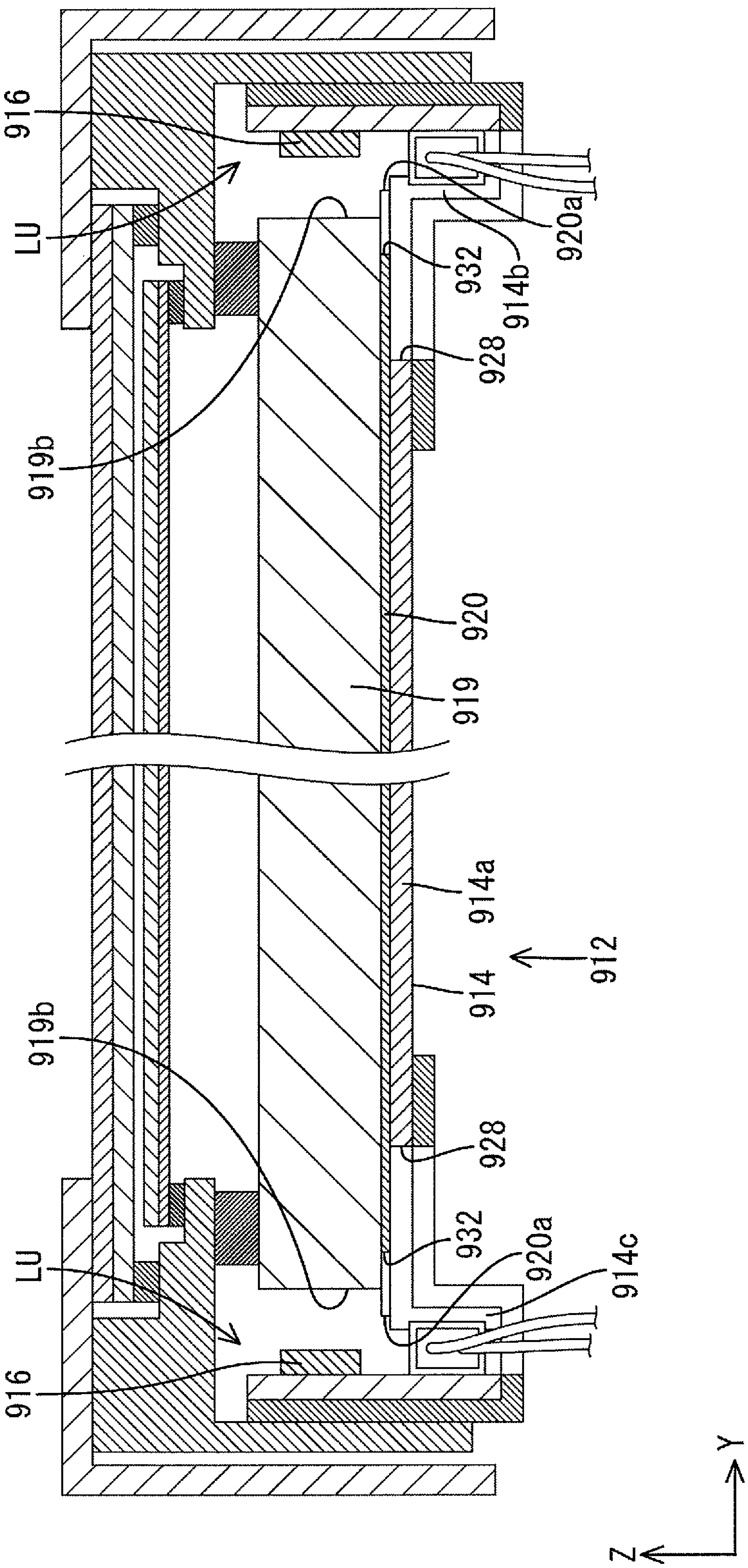

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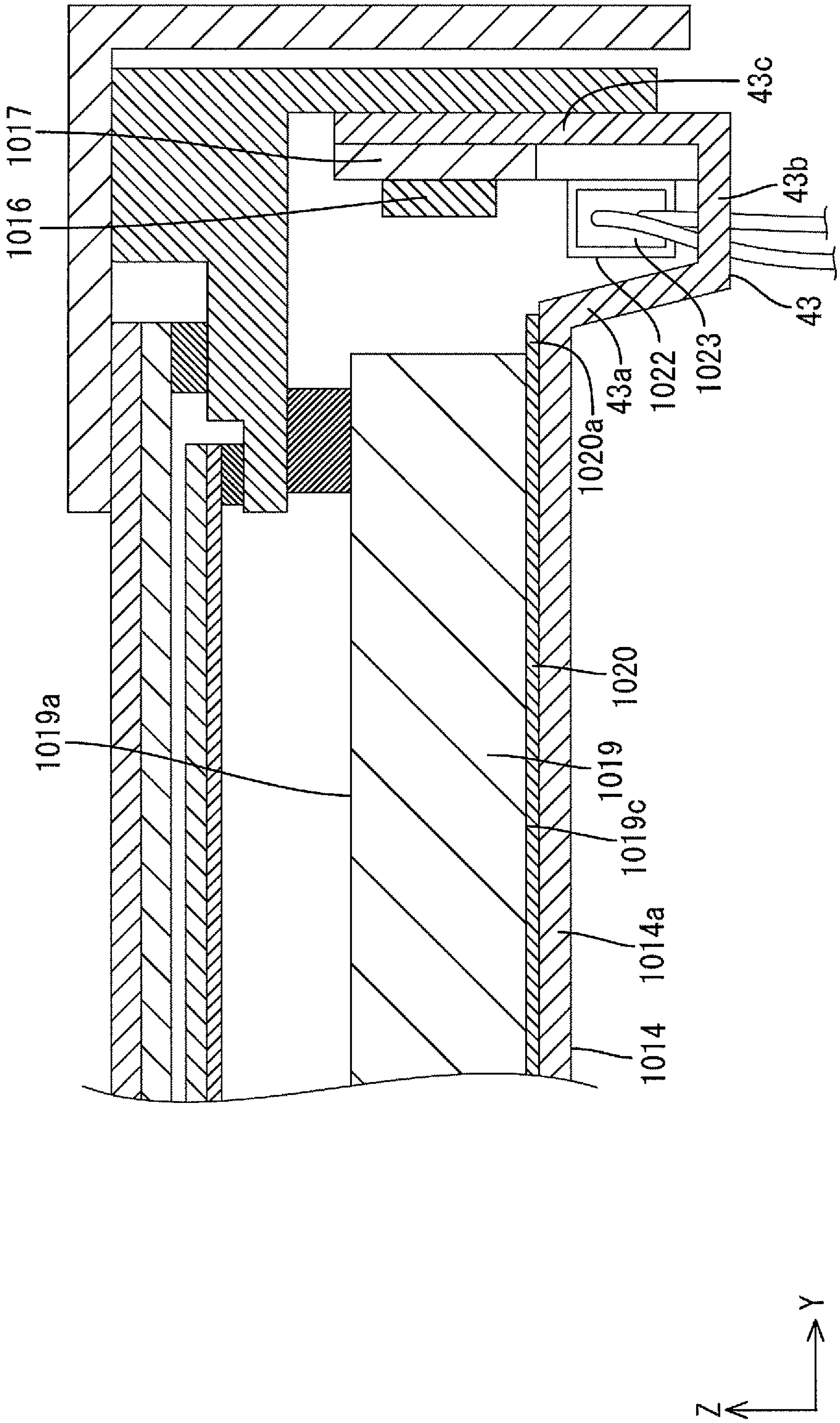
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1017
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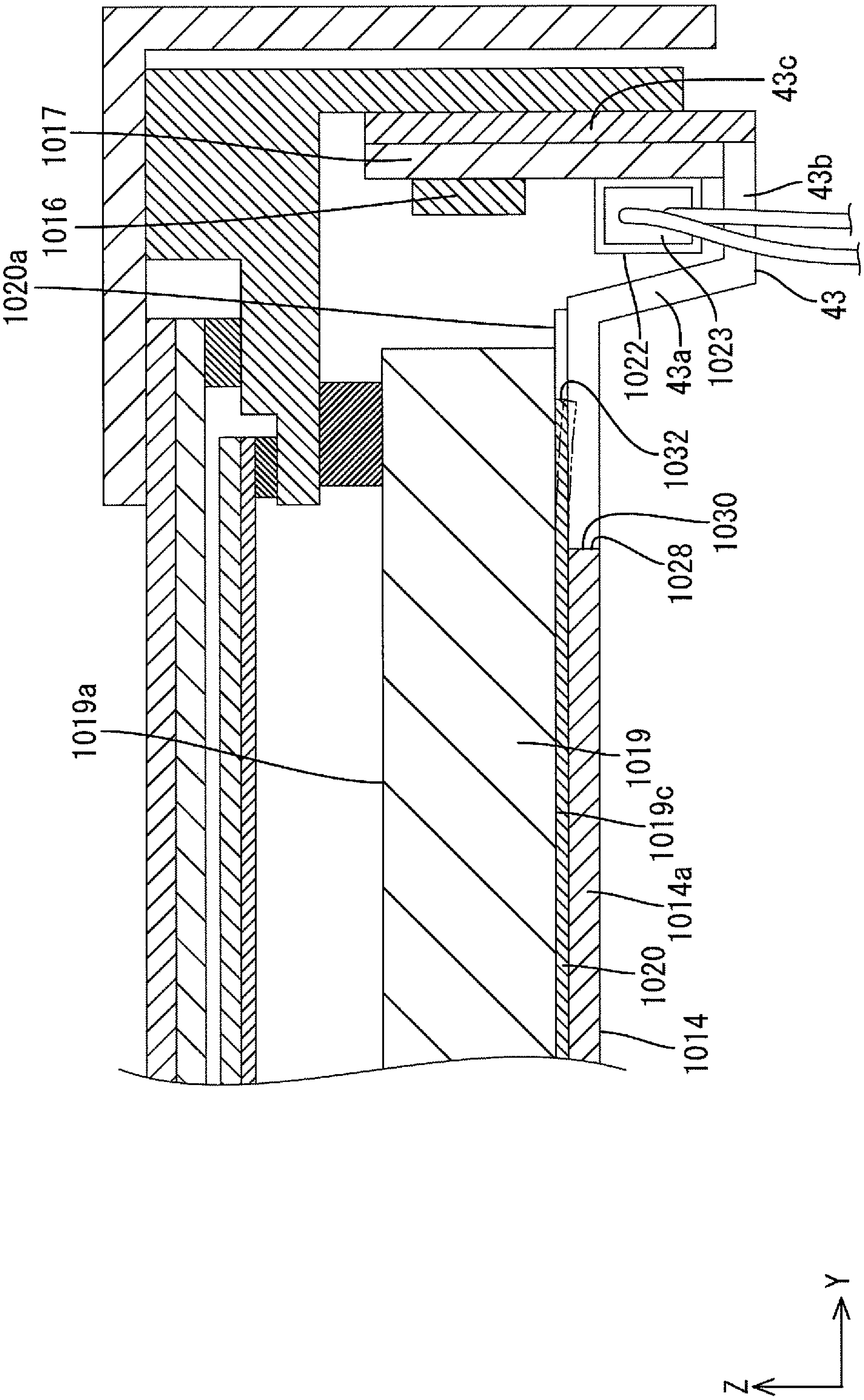
1014
Y
Z

FIG.24



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1019c
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1014
Y
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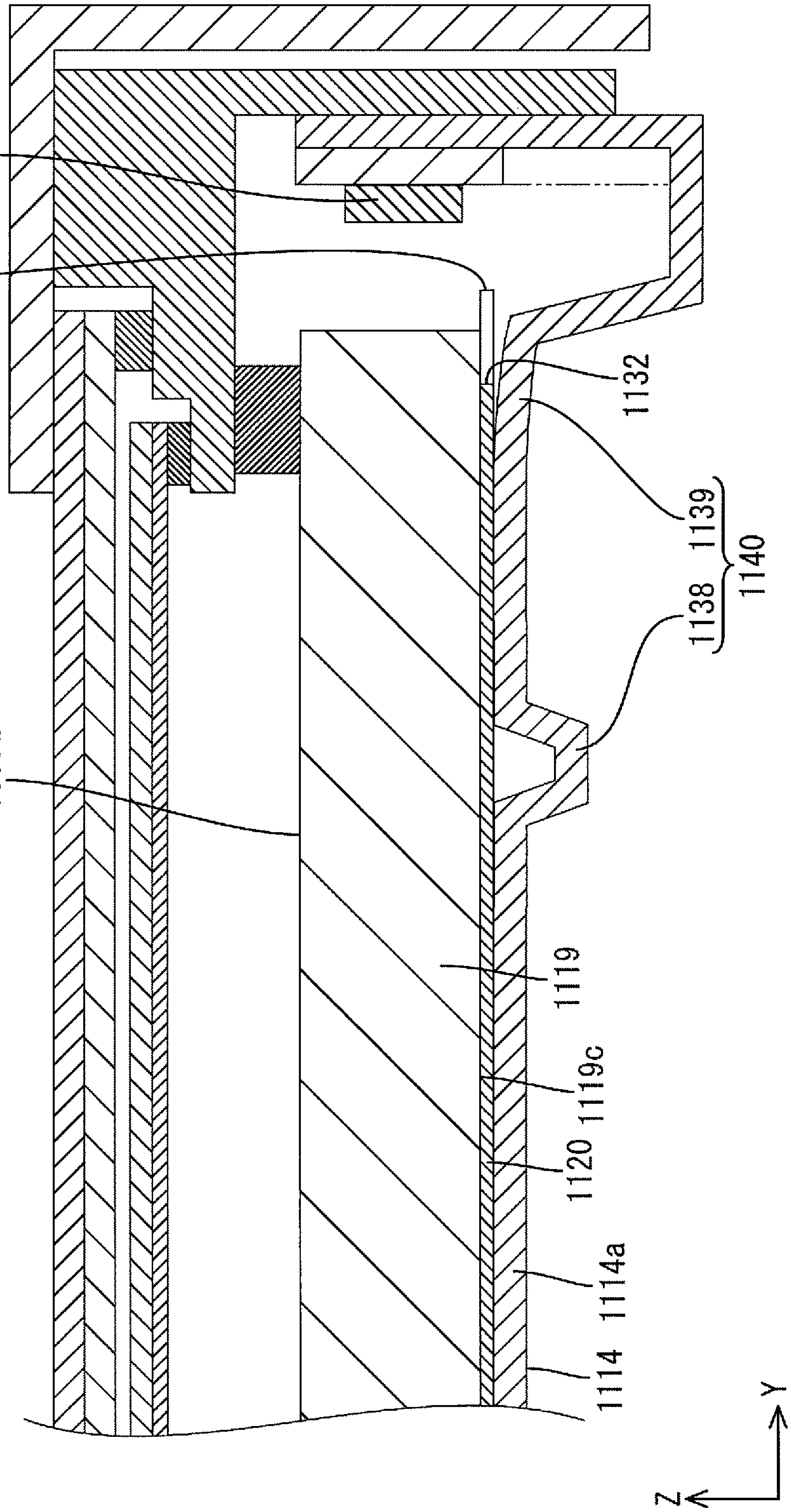
FIG.25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1114a
1114
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Z

FIG.26

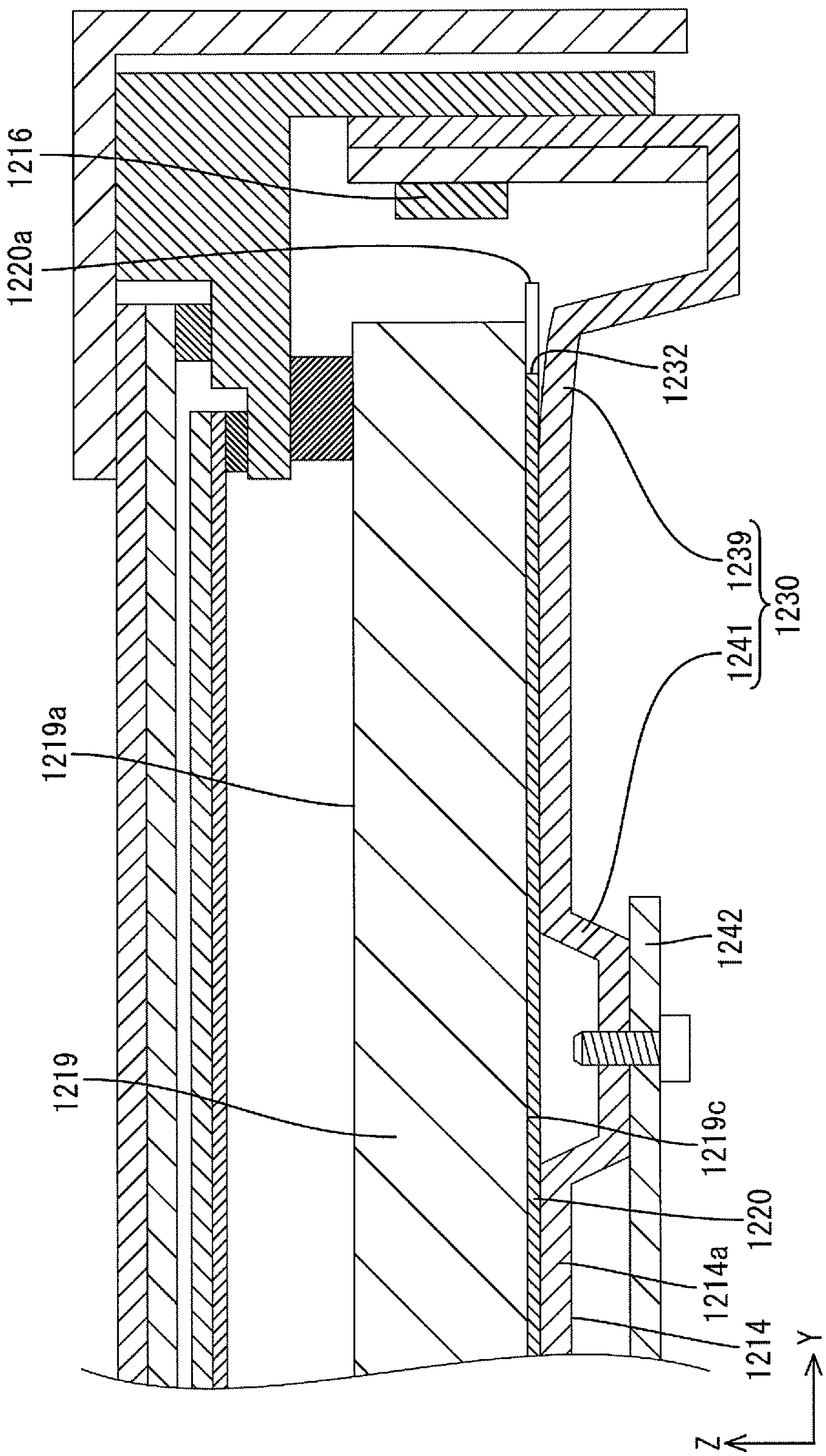

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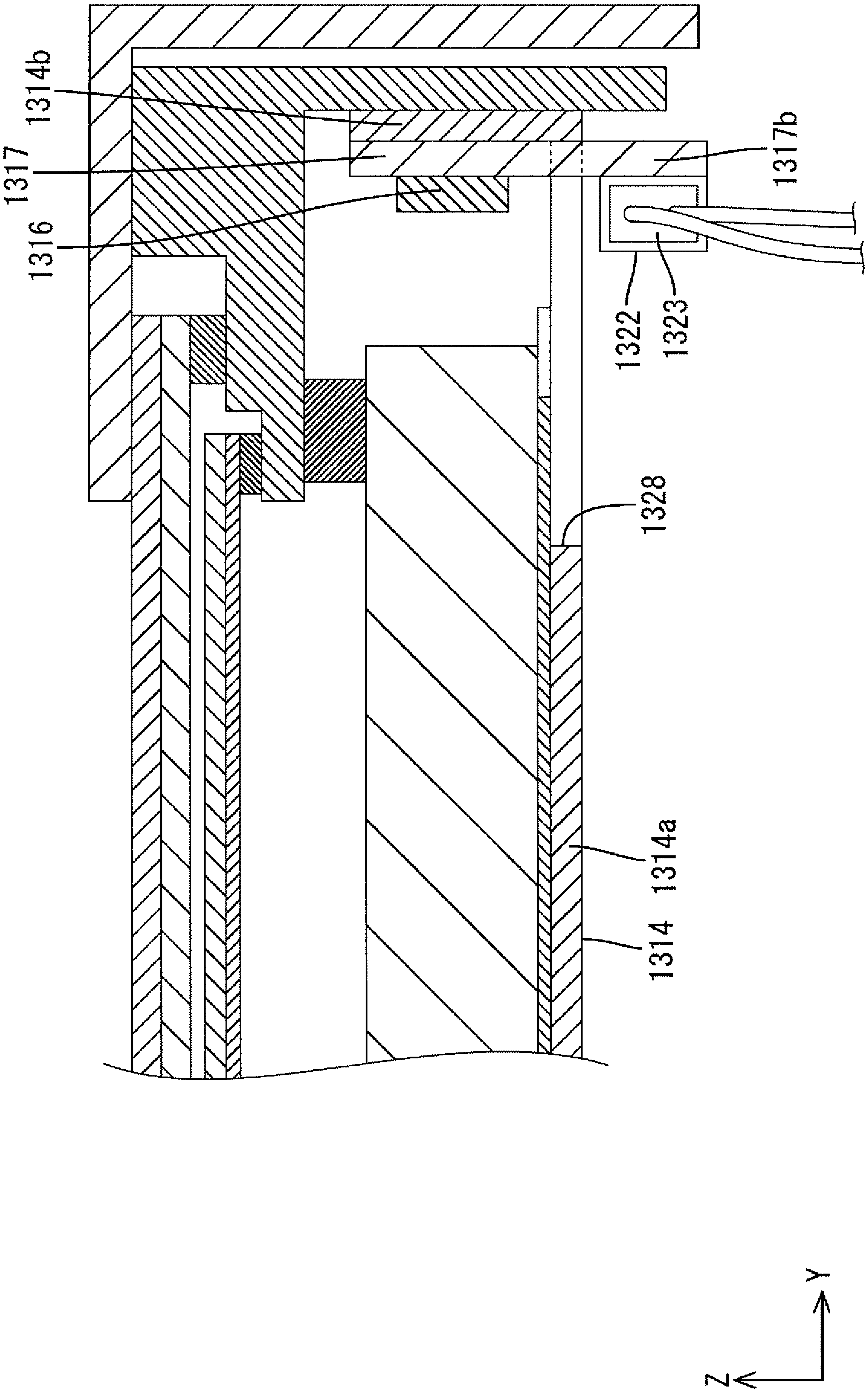
FIG.27



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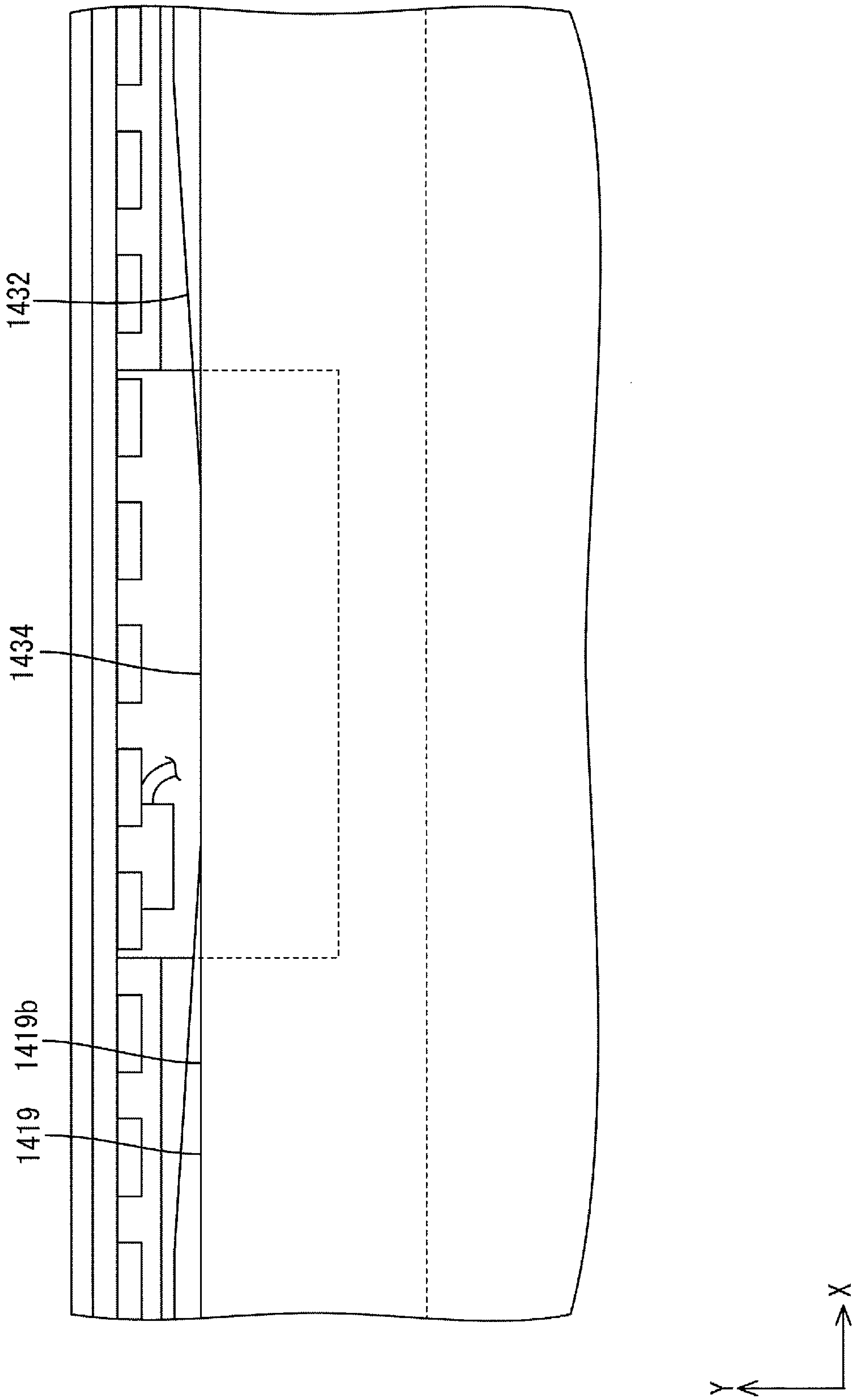
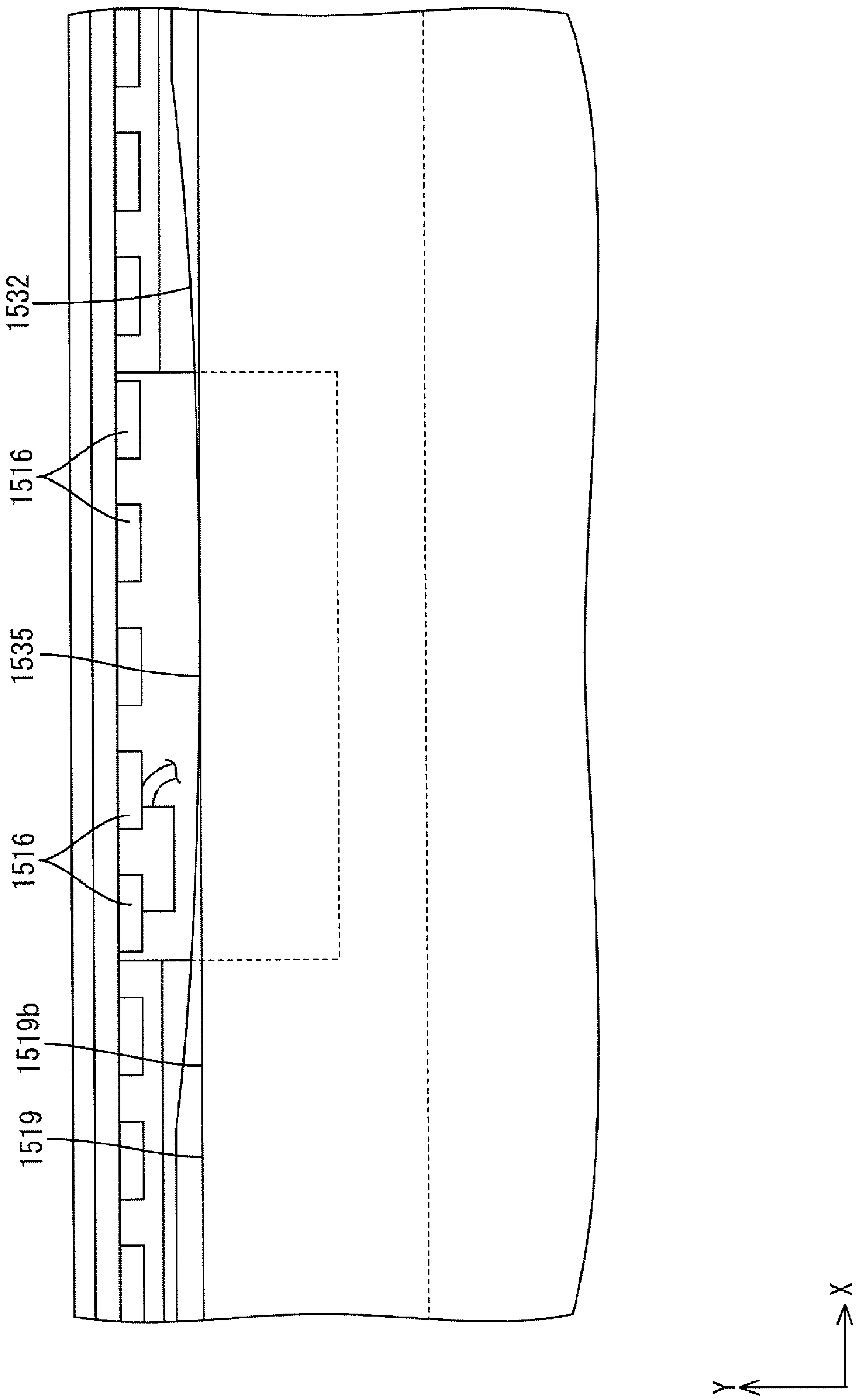


FIG.29



LIGHTING DEVICE, DISPLAY DEVICE AND TELEVISION DEVICE

TECHNICAL FIELD

The present invention relates to a lighting device, a display device and a television device.

BACKGROUND ART

Displays in image display devices, such as television devices, are now being shifted from conventional cathode-ray tube displays to thin displays, such as liquid crystal displays and plasma displays. With the thin displays, the thicknesses of the image display devices can be reduced. Liquid crystal panels included in the liquid crystal display devices do not emit light, and thus backlight devices are required as separate lighting devices. The backlight devices are classified broadly into a direct type and an edge-light type according to mechanisms thereof. For realizing further reduction in thicknesses of the liquid crystal display devices, the edge-light type backlight devices including light guide plates are preferably used, and one described in PTL 1 below is known as one example thereof.

CITATION LIST

Patent Literature

PTL 1: Japanese Unexamined Patent Application Publication No. 2007-265882

Technical Problem

An edge-light type backlight unit described in PTL 1 above includes a light guide plate, cold cathode fluorescent lamps arranged on a side-surface side of the light guide plate, a reflection sheet arranged on a back-surface side of the light guide plate, and a reflector that supports the reflection sheet from a back surface thereof and covers the cold cathode fluorescent lamps to reflect light from the cold cathode fluorescent lamps onto the light guide plate. The reflector is provided with a convex portion, by which the reflection sheet is forced to come into contact with an edge of the light guide plate, and thus diffuse reflection of light on the edge of the light guide plate is suppressed.

However, there is a case where the convex portion as described above is difficult to be provided in the reflector due to a design, and if a hole portion or a concave portion is formed in the reflector because of the design to the contrary, the light guide plate and the reflection sheet are not supported partially. Then, a part of the reflection sheet, which overlaps with the hole portion or the concave portion, is separated from the light guide plate and the light from the cold cathode fluorescent lamps reflects off the separated part of the reflection sheet and directly enters the back surface of the light guide plate, and exits the light guide plate through a front surface thereof as it is, so that a bright region is locally generated and luminance unevenness may be caused.

SUMMARY OF INVENTION

The invention has been completed based on circumstances as described above, and aims to suppress luminance unevenness.

Solution to Problem

A lighting device of the invention includes: a light source; a light guide plate having a plate shape and including at least one edge surface as a light entrance surface through which light from the light source enters, one plate surface as a light exit surface through which the light exits the light guide plate, and another plate surface as an opposite plate surface being opposite to the light exit surface; a chassis having a bottom plate portion that includes a light guide plate support portion supporting the light guide plate from a side of the opposite plate surface and a light guide plate non-support portion not supporting the light guide plate from the side of the opposite plate surface; and a reflection member that is disposed between the opposite plate surface of the light guide plate and the bottom plate portion of the chassis and reflects the light travelling through the light guide plate toward the light exit surface, the reflection member having an extended reflection portion that extends closer to the light source than the light entrance surface of the light guide plate and having a cutout portion that is formed by cutting out at least a part of a portion of the extended reflection portion overlapping with the light guide plate non-support portion.

According to such a configuration, light emitted from the light source enters the light guide plate through the light entrance surface, and is then, for example, reflected toward the light exit surface by the reflection member that is disposed between the opposite plate surface opposite to the light exit surface and the bottom plate portion of the chassis, and thereby propagating in the light guide plate and then exits through the light exit surface. Since the reflection member has the extended reflection portion that extends so as to be closer to the light source than the light entrance surface of the light guide plate, by reflecting the light from the light source by the extended reflection portion, light entering efficiency for the light entrance surface is enhanced. On the other hand, since the bottom plate portion of the chassis has the light guide plate support portion that supports the light guide plate from the side of the opposite plate surface and the light guide plate non-support portion that does not support the light guide plate from the side of the opposite plate surface, if the portion overlapping with the light guide plate non-support portion is included in the extended reflection portion, the overlapping portion may be separated from the opposite plate surface and the separated portion reflects the light from the light source to cause the light to enter the opposite plate surface, so that the entering light is likely to directly exit from the light exit surface to cause a locally bight region, that is, luminance unevenness.

Since the cutout portion is formed in the reflection member by cutting out at least a part of the portion of the extended reflection portion overlapping with the light guide plate non-support portion, so that a portion of the extended reflection portion is less likely to be separated from the opposite plate surface of the light guide plate due to the light guide plate non-support portion, and light from the light source is less likely to reflect off the extended reflection portion and less likely to directly enter through the opposite plate surface. Thereby, the light that has entered through the opposite plate surface is less likely to directly exit the light guide plate through the light exit surface, so that luminance unevenness is hard to be caused in the light output through the light exit surface.

As aspects of the lighting device of the invention, the following preferable configurations are provided.

(1) The reflection member may include the cutout portion having a cutout edge that is flush with the light entrance surface or opposite to the light source with respect to the light entrance surface. According to such a configuration, compared to a configuration that the cutout edge of the cutout portion is closer to the light source than the light

entrance surface, a portion of the extended reflection portion is less likely to be separated from the opposite plate surface of the light guide plate due to the light guide plate non-support portion, and light from the light source is less likely to reflect off the extended reflection portion and is less likely to directly enter through the opposite plate surface, thus making it possible to suppress luminance unevenness more suitably.

(2) The cutout edge of the cutout portion may be arranged opposite to the light source with respect to the light entrance surface. According to such a configuration, compared to a configuration that the cutout edge of the cutout portion is flush with the light entrance surface, the cutout edge is less likely to be closer to the light source than the light entrance surface even if positional errors may be caused in arrangement of the cutout edge of the cutout portion because of tolerance of a dimension, tolerance of attachment or the like, thus making it possible to suppress occurrence of luminance unevenness more suitably.

(3) The light guide plate non-support portion may have an edge that is opposite to the light source with respect to the light entrance surface, and the cutout edge of the cutout portion of the reflection member may be closer to the light entrance surface than the edge of the light guide plate non-support portion. According to such a configuration, reflection light reflecting off the reflection member is sufficiently secured and use efficiency of light is less likely to be lowered, compared to a configuration that the cutout edge of the cutout portion is flush with the edge of the light guide plate non-support portion and an amount of reflection light reflecting off the reflection member decreases so that use efficiency of light is lowered. Note that, when the cutout edge of the cutout portion is disposed so as to be closer to the light entrance surface than the edge of the light guide plate non-support portion, a portion of the extended reflection portion may be separated from the opposite plate surface of the light guide plate due to the light guide plate non-support portion. However, the cutout edge of the cutout portion is flush with the light entrance surface or opposite to the light source with respect to the light entrance surface and therefore, reflection light reflecting off the extended reflection portion extending closer to the light source than the light entrance surface is less likely to directly enter the light guide plate through the opposite plate surface, so that luminance unevenness is hard to occur surely.

(4) The cutout portion of the reflection member may have an opening size in a direction along the light entrance surface continuously decreasing as is farther away from the light source. According to such a configuration, an area of the reflection member, that is, an amount of reflection light reflecting off the reflection member in the direction along the light entrance surface continuously changes, so that compared to a configuration that a dimension of the cutout portion in the direction along the light entrance surface is constant or a configuration that the dimension decreases in a stepwise manner as being farther away from the light source, a dark region that may be caused in the light exit surface due to the cutout portion is less likely to be visually recognized, which is more suitable for suppressing occurrence of luminance unevenness.

(5) The cutout portion of the reflection member may have a formation range in the direction along the light entrance surface greater than a formation range of the light guide plate non-support portion in the direction along the light entrance surface. According to such a configuration, since the cutout portion extends to have a formation range overlapping with the light guide plate support portion in the direction along the light entrance surface, an amount of reflection light changes continuously between the portion of the extended reflection portion overlapping with the light guide plate non-support portion, and the portion of the extended reflection portion overlapping with the light guide plate support portion. Thereby, a dark region that may be caused in the light exit surface due to the cutout portion is less likely to be visually recognized, which is further suitable for suppressing occurrence of luminance unevenness. Even if positional errors may be caused in arrangement of the cutout portion because of tolerance of a dimension, tolerance of attachment, or the like, the cutout portion is likely to be disposed so as to appropriately overlap with the light guide plate non-support portion in the direction along the light entrance surface, so that an effect of suppressing luminance unevenness by the cutout portion is achieved more reliably.

(6) The cutout portion of the reflection member may have a formation range in the direction along the light entrance surface greater than a formation range of the cutout portion extending in the direction from the light source to the light entrance surface. According to such a configuration, even if positional errors may be caused in arrangement of the cutout portion in the direction along the light entrance surface because of tolerance of a dimension, tolerance of attachment, or the like, the cutout portion is likely to be disposed so as to appropriately overlap with the light guide plate non-support portion in the direction along the light entrance surface, so that an effect of suppressing luminance unevenness by the cutout portion is achieved more reliably. In this case, if the formation range of the cutout portion in the direction from the light source to the light entrance surface is greater than or same as the formation range of the cutout portion in the direction along the light entrance surface with dealing with the positional errors that may be caused as described above in the arrangement of the cutout portion, a formation range of the cutout portion in the direction from the light source to the light entrance surface tends to be excessively large and an amount of reflection light reflecting off the reflection member decreases, so that use efficiency of light is likely to be lowered. Compared to this, if the formation range of the cutout portion in the direction along the light entrance surface is set to be wider than the formation range at the cutout portion in the direction from the light source to the light entrance surface, an effect of suppressing luminance unevenness by the cutout portion as described above is achieved more reliably while sufficiently ensuring use efficiency of light.

(7) The light guide plate non-support portion may include an opening that is in the bottom plate portion. According to such a configuration, compared to a configuration that the light guide plate non-support portion has a recessed portion which is formed by recessing the bottom plate portion, a portion of the extended reflection portion may be likely to be separated from the opposite plate surface of the light guide plate due to the opening, which is the light guide plate non-support portion, and a distance of the separation tends to be greater. However, the reflection member including the cutout portion is less likely to have such a problem, thus making it possible to effectively suppress luminance unevenness.

(8) The lighting device may further include a light source board on which the light source is mounted and a power feed portion for feeding power to the light source on the light source board. The power feed portion may be exposed to outside through the opening of the bottom plate portion. According to such a configuration, when the opening is

formed so that the opening causes the power feed portion to be exposed to outside, it is possible to cause the power feed portion to pass through the opening easily. In this manner, the opening which allows passing the power feed portion is disposed near the light source board and the light entrance surface of the light guide plate in the bottom plate portion, and thus is easy to be disposed necessarily so as to overlap also with the extended reflection portion of the reflection member. However, in the reflection member having the cutout portion, a portion of the extended reflection portion is less likely to be separated from the opposite plate surface of the light guide plate due to the opening, which is the light guide plate non-support portion, and light from the light source is less likely to reflect off the extended reflection portion and is less likely to directly enter through the opposite plate surface, thus making it possible to effectively suppress luminance unevenness.

(9) The light source board may have a light source mounting portion on which the light source is mounted, and a protrusion for power feeding protruding from the light source mounting portion in a direction from the light exit surface to the opposite plate surface, the protrusion for power feeding may have the power feed portion thereon. The power feed portion and the protrusion for power feeding may be exposed to outside through the opening of the bottom plate portion. According to such a configuration, compared to a configuration that the power feed portion is arranged in a part of the light source mounting portion and the light source mounting portion includes a portion having no light source, with a configuration including the protrusion for power feeding where the power feed portion is disposed so as to be projected from the light source mounting portion along the direction from the side of the light exit surface to the side of the opposite plate surface, the light source mounting portion may not include the portion having no light source thereon, so that a portion in which an amount of irradiated light from the light source decreases locally is less likely to be generated in the light entrance surface of the light guide plate. Thereby, even if a frame of the lighting device is increasingly narrowed and the light source and the light entrance surface have a closer positional relation, a dark region is less likely to be generated in light output from the light exit surface, thus making it possible to suppress occurrence of luminance unevenness associated with narrowing of the frame. In addition, since the protrusion for power feeding protruding from the light source mounting portion along the direction from the side of the light exit surface to the side of the opposite plate surface, and the power feed portion disposed thereon are exposed to outside through the opening that is formed in the bottom plate portion, so that sufficiently enhanced workability is also achieved when the power feed portion is passed through the opening.

(10) The opening of the bottom plate portion may have an opening edge that is opposite to the light source with respect to the light entrance surface. Thereby, even if a protrusion dimension by which the protrusion for power feeding protrudes from the light source mounting portion is small, a sufficiently large formation range of the opening is ensured so that the opening edge is disposed so as to be opposite to the light source with respect to the light entrance surface, and thus excellent workability is achieved for working of passing the power feed portion through the opening. When the protrusion dimension by which the protrusion for power feeding protrudes from the light source mounting portion is reduced, reduction in thickness of the lighting device is accomplished.

(11) The light guide plate non-support portion may include a recessed portion that is recessed in the bottom plate portion so as to be farther away from the light guide plate, and a deformation portion that is adjacent to the recessed portion in the bottom plate portion, the deformation portion may be away from the opposite plate surface of the light guide plate by a distance that is relatively greater than a distance between the opposite plate surface of the light guide plate support portion and the light guide plate support portion. If the recessed portion that is recessed so as to be farther away from the light guide plate is formed in the bottom plate portion, the deformation portion may be generated by warpage or bending in the bottom plate portion, and such a deformation portion is in a portion of the bottom plate portion adjacent to the recessed portion. Thus, for example, even if the recessed portion is formed not overlapping with the extended reflection portion of the reflection member, the deformation portion may be formed in a portion of the bottom plate portion overlapping with the extended reflection portion of the reflection member. The deformation portion is away from the opposite plate surface of the light guide plate with a distance relatively greater than a distance between the opposite plate surface and the light guide plate support portion. In the reflection member having the cutout portion, a portion of the extended reflection portion is less likely to be separated from the opposite plate surface of the light guide plate due to the deformation portion, which is the light guide plate non-support portion, and light from the light source is less likely to reflect off the extended reflection portion and is less likely to directly enter the opposite plate surface, thus making it possible to effectively suppress luminance unevenness.

(12) The lighting device may further include a board that is opposite to the light guide plate with respect to the bottom plate portion and is attached to the recessed portion. This makes it possible to attach the board, which is provided so as to be opposite to the light guide plate with respect to the bottom plate portion, by using the recessed portion. In other words, even if the deformation portion may be formed in the bottom plate portion according to the formation of the recessed portion in the bottom plate portion in order to attach the board, the reflection member including the cutout portion effectively suppresses luminance unevenness resulting from the deformation portion.

A display device of the invention includes the lighting device above, and a display panel which displays an image by using light from the lighting device. With such a display device, luminance unevenness of the lighting device is suppressed. Thus, the display device of the invention has excellent display quality associated with the image displayed on the display panel and is suitable for an increase in screen size.

A television device of the invention includes the display device above. With such a television device, luminance unevenness of the lighting device included in the display device is suppressed. Thus, the display device of the invention has excellent display quality associated with a television image displayed on the display panel and is suitable for an increase in screen size.

Advantageous Effects of Invention

According to the invention, luminance unevenness is able to be suppressed.

BRIEF DESCRIPTION OF DRAWINGS

FIG. **1** is an exploded perspective view illustrating a schematic configuration of a television device according to Embodiment 1 of the invention.

FIG. **2** is an exploded perspective view illustrating a schematic configuration of a liquid crystal display device.

FIG. **3** is a cross-sectional view of the liquid crystal display device taken along a short-side direction thereof for illustrating a cross-sectional configuration.

FIG. **4** is a plan view of a backlight device included in the liquid crystal display device.

FIG. **5** is a bottom view of the backlight device included in the liquid crystal display device.

FIG. **6** is an enlarged plan view of a main part of FIG. **4**.

FIG. **7** is a cross-sectional view taken along a line vii-vii of FIG. **6**.

FIG. **8** is a cross-sectional view taken along a line viii-viii of FIG. **7**.

FIG. **9** is a cross-sectional view of a liquid crystal display device, according to a comparative example, which includes a reflection sheet in which a cutout portion is not formed.

FIG. **10** is an enlarged plan view of a main part of a backlight device according to Embodiment 2 of the invention.

FIG. **11** is a cross-sectional view taken along a line xi-xi of FIG. **10**.

FIG. **12** is an enlarged plan view of a main part of a backlight device according to Embodiment 3 of the invention.

FIG. **13** is an enlarged plan view of a main part of a backlight device according to Embodiment 4 of the invention.

FIG. **14** is an enlarged plan view of a main part of a backlight device according to Embodiment 5 of the invention.

FIG. **15** is an enlarged plan view of a main part of a backlight device according to Embodiment 6 of the invention.

FIG. **16** is an enlarged plan view of a main part of a backlight device according to Embodiment 7 of the invention.

FIG. **17** is a cross-sectional view taken along a line xvii-xvii of FIG. **16**.

FIG. **18** is an enlarged plan view of a main part of a backlight device according to Embodiment 8 of the invention.

FIG. **19** is a cross-sectional view taken along a line xix-xix of FIG. **18**.

FIG. **20** is an enlarged plan view of a main part of a backlight device according to Embodiment 9 of the invention.

FIG. **21** is a cross-sectional view taken along a line xxi-xxi of FIG. **20**.

FIG. **22** is a cross-sectional view of a liquid crystal display device according to Embodiment 10 of the invention taken along a short-side direction thereof at a position passing through a cutout portion.

FIG. **23** is a cross-sectional view of a liquid crystal display device according to Embodiment 11 taken along a short-side direction thereof for illustrating a cross-sectional configuration.

FIG. **24** is a cross-sectional view of the liquid crystal display device taken along the short-side direction thereof at a position passing through a cutout portion.

FIG. **25** is a cross-sectional view of a liquid crystal display device according to Embodiment 12 of the invention taken along a short-side direction thereof at a position passing through a cutout portion.

FIG. **26** is a cross-sectional view of a liquid crystal display device according to Embodiment 13 of the invention taken along a short-side direction thereof at a position passing through a cutout portion.

FIG. **27** is a cross-sectional view of a liquid crystal display device according to Embodiment 14 of the invention taken along a short-side direction thereof at a position passing through a cutout portion.

FIG. **28** is an enlarged plan view of a main part of a backlight device according to another embodiment (1) of the invention.

FIG. **29** is an enlarged plan view of a main part of a backlight device according to another embodiment (2) of the invention.

DESCRIPTION OF EMBODIMENTS

<Embodiment 1>

Embodiment 1 of the invention will be described with reference to FIG. **1** to FIG. **9**. In the present embodiment, a liquid crystal display device **10** will be exemplified. Note that, X-axes, Y-axes and Z-axes are provided in portions of the drawings, respectively, and the axes in each drawing correspond to the respective axes in other drawings. In FIG. **3**, FIG. **7** and FIG. **8**, the upper side and the lower side correspond to the front side and the rear side, respectively.

As illustrated in FIG. **1**, a television device TV according to the present embodiment includes the liquid crystal display device **10**, front and rear cabinets Ca, Cb that hold the liquid crystal display device **10** therebetween, a power source P, a tuner T, and a stand S. An overall shape of the liquid crystal display device (display device) **10** is a landscape rectangular, and, as illustrated in FIG. **2**, includes at least a liquid crystal panel **11** which is a display panel, a backlight device (lighting device) **12** which is a lighting device for supplying illumination light to the liquid crystal panel **11**, and a first frame **13** that supports the liquid crystal panel **11** from the front side and holds the liquid crystal panel **11** between the first frame **13** and the backlight device **12**. Among them, the liquid crystal panel **11** is attached to the liquid crystal display device **10** with a posture in which a display screen for displaying an image thereon faces the front side. The first frame **13** is made of metal (for example, made of aluminum), and is entirely formed in a frame shape extending along an outer peripheral end of the liquid crystal panel **11**. The first frame **13** has a first frame main body (frame portion) **13***a* which extends along the outer peripheral end of the liquid crystal panel **11** and has a rectangular frame shape in a plan view, and a first frame surrounding portion (cylindrical portion) **13***b* that is connected to an outer peripheral end of the first frame main body **13***a* and surrounds the backlight device **12** from an outer peripheral side.

The liquid crystal panel **11** will be described first. As illustrated in FIG. **2**, the liquid crystal panel **11** includes a pair of glass substrates having a landscape rectangular shape in a plan view and having high light transmission capability. The glass substrates are bonded together with a predetermined gap therebetween. The liquid crystal layer is sealed between the substrates. On one of the substrates (array substrates), switching components (e.g., TFTs) connected to source lines and gate lines that are perpendicular to each other, pixel electrodes connected to the switching components, an alignment film, and the like are provided. On the other substrate, a color filter having color sections such as R (red), G (green) and B (blue) color sections arranged in a predetermined pattern, counter electrodes, an alignment film, and the like are provided. The liquid crystal panel **11** is sectioned into a display area that is in a center area of a screen and allows display of an image (active area) and a non-display area that is in an outer peripheral end area of the screen and has a frame shape surrounding the periphery of the display area (non-active area). Note that, a pair of front and rear polarizing plates are attached to outer surfaces of the pair of glass substrates.

Next, the backlight device **12** will be described. As illustrated in FIG. **2** and FIG. **3**, the backlight device **12** includes at least a chassis **14** having a bottom plate portion **14***a*, an LED unit (light source unit) LU including LEDs (Light Emitting Diodes) **16** that are light sources, a light guide plate **19** that is placed on the bottom plate portion **14***a* of the chassis **14** and guides light from the LED unit LU, a reflection sheet (reflection member) **20** that is arranged between the light guide plate **19** and the bottom plate portion **14***a*, a second frame **21** that supports the light guide plate **19** from the front side and sandwiches and holds the light guide plate **19** and the reflection sheet **20** between the chassis **14** and the second frame **21**, and an optical sheet (optical member) **15** that is arranged between the liquid crystal panel **11** and the light guide plate **19**. The LED unit LU includes the LEDs **16**, an LED board (light source board) **17** on which the LEDs **16** are mounted, and a heat dissipation member **18** on which the LED board **17** is mounted. In the backlight device **12**, a pair of LED units LU are arranged at one of both long-side edges thereof (on an upper side in FIG. **2**, on a right side in FIG. **3**), and the LEDs **16** that are provided on each of the LED units LU are positioned closer to the one long-side edge of the liquid crystal panel **11**. In this manner, the backlight device **12** according to the present embodiment is a single edge light type (side light type) in which light enters the light guide plate **19** through only one surface. The pair of LED units LU are arranged so as to be adjacent to each other along a long-side direction of the light guide plate **19**. Each component of the backlight device **12** will be specifically described below.

The chassis **14** is made of metal, for example, aluminum, and has higher thermal conductivity compared to a chassis made of synthetic resin. As illustrated in FIG. **2** and FIG. **3**, the chassis **14** has the bottom plate portion **14***a* that is able to cover substantially overall areas of the light guide plate **19** and the reflection sheet **20** from the rear side. The bottom plate portion **14***a* has a substantially flat plate shape extending along a plate surface of the light guide plate **19** and is formed in a landscape rectangular shape similarly to the light guide plate **19** and the reflection sheet **20**, and has a size in a plan view (a long-side dimension and a short-side dimension) larger than those of the light guide plate **19** and the reflection sheet **20**. The bottom plate portion **14***a* has a posture in which a long-side direction, a short-side direction, and a thickness direction correspond to an X-axis direction, a Y-axis direction, and a Z-axis direction, respectively. Among a pair of long-side outer edges of the bottom plate portion **14***a*, from the outer edge on the LED unit LU side (the upper side in FIG. **2**, the right side in FIG. **3**), a first side plate portion **14***b* is provided so as to extend to the rear side along the Z-axis direction, and from the outer edge on the opposite side to the LED unit LU side (a lower side in FIG. **2**, a left side in FIG. **3**), a second side plate portion **14***c* is provided so as to upstand to the front side (opposite side to that of the first side plate portion **14***b*) along the Z-axis direction. Each of the first side plate portion **14***b* and the second side plate portion **14***c* is bent substantially at right angle from each long-side outer edge of the bottom plate portion **14***a*, and has a plate surface orthogonal to the plate surface of the bottom plate portion **14***a* and in parallel to the long-side direction (X-axis direction) of the bottom plate portion **14***a*. Further, since the first side plate portion **14***b*

and the second side plate portion **14***c* are arranged so as to extend an almost full length (as to the first side plate portion **14***b*, excluding a chassis-side opening **28**, which will described below) along the long-side direction in the bottom plate portion **14***a*, mechanical strength of the bottom plate portion **14***a* may be increased, in particular, deformation such as bending or warpage along a short-side direction is less likely to be caused in the bottom plate portion **14***a*.

As illustrated in FIG. **2** and FIG. **3**, optical sheets **15** have a landscape rectangular shape in a plan view similarly to the liquid crystal panel **11**, and have a size in a plan view (a short-side dimension and a long-side dimension) slightly smaller than that of the liquid crystal panel **11**. The optical sheets **15** are arranged so as to be positioned between the liquid crystal panel **11** and the light guide plate **19** to thereby transmit light output from the light guide plate **19** and output the transmission light to the liquid crystal panel **11** while applying predetermined optical actions thereto. The optical sheets **15** have a sheet shape whose thickness is thinner than that of the light guide plate **19** and form a group of the optical sheets **15** by laminating a plurality of sheets (two sheets in the present embodiment) with almost no gap therebetween, and the group of the optical sheets **15** is positioned with a predetermined space from each of a rear-side plate surface of the liquid crystal panel **11** and a front-side plate surface of the light guide plate **19** (light exit surface **19***a*). Examples of a specific type of the optical sheets **15** include a diffuser sheet, a lens sheet, and a reflecting type polarizing sheet, and the optical sheets may be selected appropriately therefrom for usage.

Next, configurations of the LEDs **16**, the LED boards **17**, and the heat dissipation members **18**, which form the LED units LU, will be described. As illustrated in FIG. **2** and FIG. **3**, each of the LEDs **16** is configured so as to seal an LED chip with a resin material on a board portion fixed to the LED board **17**. The LED chip mounted on the board portion has one main light emission wavelength, and specifically, the LED chip that emits light in a single color of blue is used. On the other hand, the resin material that seals the LED chip contains phosphors dispersed therein, and the phosphors emit light in a predetermined color when excited by blue light emitted from the LED chip. The phosphors may be selected as appropriate from yellow phosphors that emit yellow light, green phosphors that emit green light, and red phosphors that emit red light, to be used in combination, or one of them may be used alone. Each of the LEDs **16** is in a so-called top-surface-emitting type in which a surface opposite to a mounting surface on the LED board **17** serves as a main light-emitting surface **16***a*. The main light-emitting surface **16***a* of the LED **16** has a substantially rectangular shape which is landscape in a front view (long and narrow along the X-axis direction) (refer to FIG. **8**), and has a short-side dimension which is the same as or slightly smaller than a dimension of plate thickness of the light guide plate **19**.

One LED board **17** is provided on each of the pair of LED units LU as illustrated in FIG. **2** and FIG. **3**. The LED board **17** has a long and narrow plate shape that entirely extends along a long-side direction of the chassis **14** (the X-axis direction, a longitudinal direction of a light entrance surface **19***b* in the light guide plate **19**), and is attached to the heat dissipation member **18** and housed in the backlight device **12** with a posture in which a plate surface thereof is in parallel to the X-axis direction and the Z-axis direction, that is, a posture in which the plate surface is orthogonal to the plate surfaces of the liquid crystal panel **11** and the light guide plate **19** (optical sheets **15**). The LED board **17** is attached so that a plate surface opposite to the mounting surface on which the LEDs **16** are mounted is in contact with the heat dissipation member **18** and is arranged on the right side in FIG. **3** with a predetermined arrangement distance from the long-side edge (light entrance surface **19***b*) of the light guide plate **19**. Accordingly, the direction in which the LEDs **16** and the LED board **17** are arrayed in line with the light guide plate **19** almost corresponds to the Y-axis direction, and an optical axis in each of the LEDs **16**, that is, an advancing direction of light that has the highest light emission intensity almost corresponds to the Y-axis direction (direction in parallel to the plate surface of the liquid crystal panel **11**).

Specifically, as illustrated in FIG. **2** and FIG. **3**, the LED board **17** has an LED mounting portion (light source mounting portion) **17***a* which extends along the X-axis direction and on which a plurality of LEDs **16** are mounted, and a protrusion for power feeding **17***b*. The protrusion for power feeding **17***b* protrudes toward the rear side from the LED mounting portion **17***a* along the Z-axis direction and includes a board-side connector (power feed portion) **22** used for feeding power to the LEDs **16**. The LED mounting portion **17***a* has a posture in which a long-side direction (length direction) and a short-side direction (width direction) thereof correspond to the X-axis direction and the Z-axis direction, respectively, and further, a plate thickness direction orthogonal to the plate surface corresponds to the Y-axis direction, and while a length dimension of the LED mounting portion **17***a* is about a half of the long-side dimension of the light guide plate **19**, a width dimension thereof is slightly larger than a dimension of the plate thickness of the light guide plate **19**. In the LED mounting portion **17***a*, an inner side thereof, that is, a plate surface facing the light guide plate **19** side (surface opposite to the light guide plate **19**) is a mounting surface on which the LEDs **16** are surface-mounted. A plurality of LEDs **16** are arranged in a row (linearly) along the length direction (X-axis direction) on the mounting surface of the LED mounting portion **17***a* at a predetermined arrangement interval. That is, it may be said that the plurality of LEDs **16** are arranged intermittently along the long-side direction at one long-side edge of the back light device **12**. Accordingly, a direction in which the LEDs **16** are arranged matches the length directions (X-axis direction) of the LED board **17** and the light guide plate **19**. Intervals between the adjacent LEDs **16** in the X-axis direction which is the direction in which the LEDs **16** are arranged, that is, array intervals (array pitches) of the LEDs **16** are almost equal. A wiring pattern (not illustrated) that is made of a metal film (copper foil or the like) and extends along the X-axis direction is connected to terminals of the respective LEDs **16** is formed on the mounting surface of the LED mounting portion **17***a*.

As illustrated in FIG. **7** and FIG. **8**, the protrusion for power feeding **17***b* is provided so as to be in continuous to a center portion of the LED mounting portion **17***a* in a length direction and protrudes along a direction extending from the LED mounting portion **17***a* to a bottom wall portion **18***a***2** of the heat dissipation member **18** described below (a direction extending from the light exit surface **19***a* to an opposite plate surface **19***c* in the light guide plate **19**). That is, the LED board **17** has a substantially T-shape in a front view. The protrusion for power feeding **17***b* has a landscape rectangular shape in a front view, and has a posture in which a long-side direction and a short-side direction (direction of protruding from the LED mounting portion **17***a*) correspond to the X-axis direction and the Z-axis direction, respectively, and further, a plate thickness direction orthogonal to the plate surface corresponds to the Y-axis direction, and a length dimension of the LED protrusion for power feeding **17***b* is sufficiently smaller than that of the LED mounting portion **17***a*. The protrusion for power feeding **17***b* has a plate surface facing an inner side thereof, that is, a plate surface on the same side as the mounting surface in the LED mounting portion **17***a*, and the plate surface is a mounting surface on which the board-side connector **22** is surface-mounted. On the mounting surface of the protrusion for power feeding **17***b*, the wiring pattern formed on the mounting surface of the LED mounting portion **17***a* is formed continuously and the board-side connector **22** is mounted being positioned at an end of the wiring pattern. The board-side connector **22** includes a board-side housing **22***a* that is made of synthetic resin and has a substantially cylindrical shape having one end (right side in FIG. **8**) in the X-axis direction being opened, and a board-side terminal fitting (not illustrated) that is housed in the board-side housing **22***a* and connected to the end of the wiring pattern. A wiring-side connector (power feed portion) **23** that is provided at an end of a wiring member **24** connected to an LED driving circuit board, which is not illustrated, is able to be connected to the board-side connector **22** by fitting with each other, and a fitting direction thereof corresponds to the X-axis direction. Specifically, the wiring-side connector **23**, when being connected, is fitted with the board-side connector **22** from the right side to the left side in FIG. **8** along the X-axis direction, and, when being disconnected, the wiring-side connector **23** is removed from the board-side connector **22**, to the contrary, from the left side to the right side in FIG. **8** along the X-axis direction. When the wiring-side connector **23** is connected to the board-side connector **22** by fitting with each other in this manner, power from the LED driving circuit board is able to be supplied to each of the LEDs **16**. The wiring-side connector **23** that is connected to the board-side connector **22** by fitting with each other includes a wiring-side housing **23***a* that has a substantially block shape with the X-axis direction as a length direction and is made of synthetic resin, and a wiring-side terminal fitting (not illustrated) that is housed in the wiring-side housing **23***a* and connected to an end of the wiring member **24**. Note that, a base member of the LED board **17** is made of metal, for example, such as aluminum, has the wiring pattern described above formed on the surface of the base member through an insulating layer. Note that, an insulating material such as synthetic resin or ceramic is also able to be used as the material used for the base member of the LED board **17**.

The wiring pattern of the LED board **17** will be described in detail. That is, a group of the LEDs **16** mounted on the LED mounting portion **17***a* of the LED board **17** according to the present embodiment is divided into right and left two groups illustrated in FIG. **8** in a parallel direction thereof (X-axis direction) and is connected to two lines of wiring patterns which run according to each of the groups. This makes is possible to reduce a voltage value required for driving the group of the LEDs **16** included in each group, compared to a case where the number of lines is set as one. To describe specific running routes of the wiring patterns, each of the two lines of wiring patterns sets an end connected to the board-side connector **22** as a start point, and from the start point, runs so as to be separated to one side and the other side of the length direction of the LED mounting portion **17***a* from a center portion of the LED mounting portion **17***a* in the length direction, which is continuous to the protrusion for power feeding **17***b*, so that the LEDs **16** that are included in each of the groups are connected in parallel. The protrusion for power feeding **17***b* is configured to be continuous to the center portion of the LED mounting portion **17**a with respect to the length direction, and the two lines of wiring patterns run so as to be branched into the two sides from the center portion of the LED mounting portion **17**a with respect to the length direction (X-axis direction). Accordingly, each of the wiring patterns is prevented from being arrayed along a width direction (Z-axis direction) of the LED mounting portion **17**a, thus making it possible to reduce a width dimension of the LED mounting portion **17**a. This makes it possible to reduce thickness of the backlight device **12** and the liquid crystal display device **10**.

The heat dissipation members **18** are made of metal having high thermal conductivity, for example, such as aluminum, and are provided by each one in the pair of LED units LU as illustrated in FIG. **3** and FIG. **4**. The heat dissipation member **18** entirely extends along the long-side direction of the light guide plate **19** and has a length dimension that is almost same as the length dimension of the LED board **17** and is about a half of the long-side dimension of the light guide plate **19**. The heat dissipation member **18** is attached to one long-side end of the chassis **14** and is arranged so as to be exposed to an outside of the backlight device **12**, and is thereby allowed to promote heat dissipation of heat from the LEDs **16** by transferring heat transferred from the LEDs **16** via the LED board **17** to the bottom plate portion **14**a of the chassis **14** or to the outside air which exists outside the backlight device **12**.

As illustrated in FIG. **3**, the heat dissipation member **18** includes a board housing portion **18**a in which the LED board **17** is housed, and a chassis-side heat dissipation portion **18**b which extends so as to be closer to the bottom plate portion **14**a of the chassis **14** than the board housing portion **18**a and makes contact with the bottom plate portion **14**a. Among them, the board housing portion **18**a includes a board attachment portion **18**a**1** to which the LED board **17** is attached, the bottom wall portion **18**a**2** that protrudes to the chassis **14** side from a rear-side end of the board attachment portion **18**a**1**, and a side wall portion **18**a**3** that upstands from the end protruding from the board attachment portion **18**a**1** in the bottom wall portion **18**a**2** to the front side and faces the board attachment portion **18**a**1** with a predetermined interval therebetween. The LED board **17** is housed in a space formed between the board attachment portion **18**a**1** and the side wall portion **18**a**3** which form the board housing portion **18**a, and is attached to the board attachment portion **18**a**1**. The board attachment portion **18**a**1** has a plate surface having a plate shape in parallel to the plate surface of the LED board **17**, and a length direction, a width direction, and a plate thickness direction thereof correspond to the X-axis direction, the Z-axis direction, and the Y-axis direction, respectively. The bottom wall portion **18**a**2** is bent substantially at right angle from the board attachment portion **18**a**1** and has a plate surface formed in a plate shape in parallel to the plate surface of the bottom plate portion **14**a of the chassis **14**. The side wall portion **18**a**3** is bent substantially at right angle from the bottom wall portion **18**a**2** and has a plate surface formed in a plate shape in parallel to each plate surface of the board attachment portion **18**a**1** and the LED board **17**. A width dimension of the side wall portion **18**a**3** (stand-up dimension from the bottom wall portion **18**a**2**) is smaller than a width dimension of the board attachment portion **18**a**1**. The first side plate portion **14**b of the chassis **14** is housed in a space formed between the side wall portion **18**a**3** and the LED board **17**, and a plate surface of the first side plate portion **14**b, which is opposite to the LED board **17**, is arranged so as to be in contact with or proximate to the side wall portion **18**a**3**.

As illustrated in FIG. **3**, the chassis-side heat dissipation portion **18**b has a plate surface formed in a plate shape in parallel to plate surfaces of the bottom plate portion **14**a of the chassis **14** and the bottom wall portion **18**a**2**, and a length direction, a width direction, and a plate thickness direction thereof correspond to the X-axis direction, the Y-axis direction, and the Z-axis direction, respectively. A width dimension of the chassis-side heat dissipation portion **18**b (protruding dimension from the side wall portion **18**a) is larger than each width dimension of the bottom wall portion **18**a**2** and the side wall portion **18**a**3**. Further, the chassis-side heat dissipation portion **18**b covers one long-side end of the bottom plate portion **14**a of the chassis **14** from the rear side and has a plate surface on the front side thereof made in surface-contact with the rear-side plate surface of the bottom plate portion **14**a over a substantially overall area, and is therefore able to efficiently transfer heat, which is transferred from the LEDs **16** through the LED board **17** and the board housing portion **18**a, to the bottom plate portion **14**a, thus making it possible to promote heat dissipation of the LEDs **16**. In addition, since the overall area of the chassis-side heat dissipation portion **18**b is exposed to an outside on the rear side of the backlight device **12** and a large part of the board housing portion **18**a (part excluding a part of the board attachment portion **18**a**1**) is exposed to the outside on the rear side of the backlight device **12**, they are air-cooled with the outside air, thus making it possible to further promote heat dissipation of the LEDs **16**.

The light guide plate **19** is made of a substantially transparent (high light transmissivity) synthetic resin material (e.g. acrylic resin or polycarbonate such as PMMA) which has a refractive index sufficiently higher than that of the air. As illustrated in FIG. **2** and FIG. **3**, the light guide plate **19** has a landscape rectangular shape in a plan view similarly to the liquid crystal panel **11** and the optical sheet **15**, and a long-side direction and a short-side direction in the plate surface thereof correspond to the X-axis direction and the Y-axis direction, respectively, and a plate thickness direction that is perpendicular to the plate surface corresponds to the Z-axis direction. The light guide plate **19** is disposed on the rear side of the optical sheet **15** with a predetermined interval so as to face with each other. The light guide plate **19** is positioned behind the liquid crystal panel **11** and the optical sheet **15** in the chassis **14**, and one long-side end surface among outer peripheral end surfaces thereof faces the LEDs **16** of the LED unit LU. Accordingly, the direction in which the LEDs **16** (LED board **17**) and the light guide plate **19** are arranged corresponds to the Y-axis direction, while a direction in which the optical sheet **15** (liquid crystal panel **11**) and the light guide plate **19** are arranged corresponds to the Z-axis direction, and both of the arrangement directions are perpendicular to each other. The light guide plate **19** has a function of guiding light, which is emitted from the LEDs **16** along the Y-axis direction, from the long-side end surface and outputting the light from the plate surface by setting it up to be directed toward the optical sheet **15** side (front side, light exit side) while propagating the light inside thereof.

As illustrated in FIG. **3**, one plate surface facing the front side (a surface facing the optical sheet **15**) among a pair of front and rear plate surfaces of the light guide plate **19** is the light exit surface **19**a through which the inside light exits toward the optical sheet **15** and the liquid crystal panel **11**. Among a pair of long-side end surfaces having elongated shapes along the X-axis direction (the direction in which the LEDs **16** are arranged, the long-side direction of the LED board **17**) of outer peripheral end surfaces adjacent to the plate surface of the light guide plate **19**, one end surface (on the upper side in FIG. **2**, on the right side in FIG. **3**) faces the LEDs **16** (LED board **17**) with a predetermined space and serves as the light entrance surface **19***b* that the light emitted from the LEDs **16** enters. With such a gap between the light entrance surface **19***b* and the LEDs **16**, it is possible to prevent a situation that the light entrance surface **19***b* interferes the LEDs **16** when the light guide plate **19** causes thermal expansion by heat from the LEDs **16** or the like. Distances between the light entrance surface **19***b* and the respective facing LEDs **16** are substantially the same. It. may be also said that the light entrance surface **19***b* forms an "end surface facing LEDs (end surface facing light sources)" because of facing the LEDs **16**. On the other hand, among outer peripheral surfaces adjacent to the plate surface of the light guide plate **19**, each of other three end surfaces excluding the light entrance surface **19***b* described above (a long-side end surface opposite to the light entrance surface **19***b*, and a pair of short-side both end surfaces) is an end surface not facing LEDs (end surface not facing light sources), which does not face the LEDs **16**. The light entrance surface **19***b* is a surface in parallel to the X-axis direction (the direction in which the LEDs **16** are arranged) and the Z-axis direction, that is, the plate surface of the LED board **17**, and is a surface which is almost perpendicular to the light exit surface **19***a*. A direction in which the LEDs **16** and the light entrance surface **19***b* are arranged matches the Y-axis direction and is in parallel to the light exit surface **19***a*.

As illustrated in FIG. **3**, the reflection sheet **20** is disposed so as to cover the rear side of the light guide plate **19**, that is, the opposite plate surface **19***c* opposite to the light exit surface **19***a* (a surface facing the bottom plate portion **14***a* of the chassis **14**), and is allowed to reflect light, that exits toward the outside of the rear side through the opposite plate surface **19***c*, and set up the light toward the front side. In other words, the reflection sheet **20** is disposed so as to be sandwiched between the bottom plate portion **14***a* of the chassis **14** and the light guide plate **19**. The reflection sheet **20** has a slightly larger size in a plan view than that of the light guide plate **19**, and is able to cover the opposite plate surface **19***c* of the light guide plate **19** over an almost overall area (in detail, a large part of a portion overlapping with a light guide plate non-support portion **30** described below, excluding a part of the portion). The reflection sheet **20** has a slightly larger size (a long-side dimension and a short-side dimension) in a plan view than that of the light guide plate **19**. In particular, an end of the reflection sheet **20** on the light entrance surface **19***b* side of the light guide plate **19** (one long-side end) is an extended reflection portion **20***a* which extends outward from the light entrance surface **19***b*, that is, toward the LEDs **16** side. The extended reflection portion **20***a* is provided so as to extend over an almost full length of the reflection sheet **20** in a long-side direction (X-axis direction) thereof and, in other words, is arranged across LED arranged areas in which the LEDs **16** are arranged and LED non-arranged areas in which no LED **16** is arranged, in the direction in which the LEDs **16** are arranged. By reflecting light which exists in a space formed between the LED board **17** and the light entrance surface **19***b* toward the front side, the extended reflection portion **20***a* achieves high light entering efficiency for the light entrance surface **19***b*. The light which is reflected by the extended reflection portion **20***a* and enters the light entrance surface **19***b* is reflected totally by the light exit surface **19***a* and propagated through the light guide plate **19** toward a direction away from the LEDs **16** (refer to a light path represented by a long dashed short dashed line in FIG. **3**), because even if being directed to the light exit surface **19***a* directly, an incidence angle on the light exit surface **19***a* exceeds a critical angle. A light reflection pattern (not illustrated) formed of a light reflection portion for reflecting light in the light guide plate **19** toward the light exit surface **19***a* to thereby exit the light from the light exit surface **19***a* is formed in the opposite plate surface **19***c* of the light guide plate **19**. The light reflection portion forming the light reflection pattern includes a large number of dots which are formed by printing a light reflective material (for example, ink having a white color, which contains metallic oxide such as titanium oxide) on the opposite plate surface **19***c* of the light guide plate **19**, and the light reflection pattern is formed with such a distribution that a distribution density of the dots (an area ratio per a unit area in the opposite plate surface **19***c*) increases as being closer from the end of the light guide plate **19** on the light entrance surface **19***b* side to the end on the opposite side in the Y-axis direction.

The second frame **21** is made of synthetic resin and is entirely formed, as illustrated in FIG. **2** and FIG. **3**, in a frame shape extending along the outer peripheral end of the liquid crystal panel **11**. The second frame **21** has a second frame main body (frame portion) **21***a* which extends along the outer peripheral end of the light guide plate **19** and has a rectangular frame shape in a plan view, and a second frame surrounding portion (cylindrical portion) **21***b* which runs with an outer peripheral end of the second frame main body **21***a* and surrounds the chassis **14** and the heat dissipation member **18** attached thereto from an outer peripheral side. The second frame main body **21***a* is disposed facing the front side of the outer peripheral end of the light guide plate **19**, and is able to support an almost whole circumference of the outer peripheral end of the light guide plate **19** from the front side. On the rear side of the second frame main body **21***a*, that is, a surface facing the light guide plate **19**, a cushion material for the light guide plate **25** is provided so as to be positioned between the rear side of the second frame main body **21***a* and the outer peripheral end of the light guide plate **19**, thus making it possible to achieve cushioning for the light guide plate **19**. One long side portion of the second frame main body **21***a*, which faces the LED unit LU, is disposed so as to cover a space formed between the LED unit LU and the light guide plate **19** from the front side over a substantially overall area and has the cushion material for the light guide plate **25** so as to be positioned between the second frame main body **21***a* and the one long side portion of the light guide plate **19**, in which the light entrance surface **19***b* is provided, and therefore able to block light which is emitted from the LEDs **16** and directed toward the front side and prevent the light leakage caused by the light directly entering the optical sheet **15** and the liquid crystal panel **11** without passing through the light guide plate **19**.

As illustrated in FIG. **3**, the second frame main body **21***a* has a substantially three-step shape in a cross-sectional shape, in which a first step portion **21***a***1** on the top supports the first frame main body **13***a* of the first frame **13** from the rear side, a second step portion **21***a***2** at a middle height supports the outer peripheral end of the liquid crystal panel **11** from the rear side, and a third step portion **21***a***3** on the bottom supports the outer peripheral end of the optical sheet **15** from the rear side. Among them, on a front side of the second step portion **21***a***2**, that is, a surface on the side facing the liquid crystal panel **11**, a cushion material for the liquid crystal panel **26** is provided so as to be positioned between the front side of the second step portion **21***a***2** and the outer peripheral end of the liquid crystal panel **11**, thus making it possible to achieve cushioning for the liquid crystal panel **11**. On a front side of the third step portion **21**a**3**, that is, a surface on the side facing the optical sheet **15**, a cushion material for the optical sheet **27** is provided so as to be positioned between the front side of the third step portion **21**a**3** and the outer peripheral end of the optical sheet **15**, thus making it possible to achieve cushioning for the optical sheet **15**.

In the backlight device **12** configured as described above, as illustrated in FIG. **5**, FIG. **7** and FIG. **8**, in order to insert, from outside, the wiring-side connector **23** which is connected to the board-side connector **22** of the LED board **17** by fitting with each other, a chassis-side opening **28** and a heat dissipation member-side opening **29** are respectively formed in the chassis **14** and the heat dissipation member **18** so as to communicate with each other and be opened facing the rear side. The chassis-side opening **28** and the heat dissipation member-side opening **29** are able to cause the board-side connector **22** and the wiring-side connector **23** which are connected by fitting with each other in the backlight device **12** to be exposed to the outside of the rear side. The chassis-side opening **28** and the heat dissipation member-side opening **29** are disposed at positions overlapping with the board-side connector **22** and the wiring-side connector **23** in a plan view. On the other hand, one set of the board-side connector **22** and the wiring-side connector **23** is provided in each LED unit LU so that two sets of them are provided in total. Accordingly, each one set of the chassis-side opening **28** and the heat dissipation member-side opening **29** is arranged at a substantially middle position between a center position and each of positions of both ends in the chassis **14** in the X-axis direction. Moreover, the chassis-side opening **28** and the heat dissipation member-side opening **29** are disposed at an end of the chassis **14** in the Y-axis direction, which is on the LED unit LU side.

Among them, the chassis-side opening **28** is formed by cutting out a part of portions of the bottom plate portion **14**a and the first side plate portion **14**b of the chassis **14**, which overlap with the heat dissipation member **18** and each of the connectors **22** and **23** in a plan view (when viewed from a normal direction with respect to the plate surface of the bottom plate portion **14**a) and has a rectangular shape in a plan view, as illustrated in FIG. **5**, FIG. **7** and FIG. **8**. Specifically, as illustrated in FIG. **7**, the chassis-side opening **28** is formed in a range across the long-side portion of the bottom plate portion **14**a in the Y-axis direction, which is on the LED unit LU side, and the first side plate portion **14**b, to thereby open to the front and rear sides along the Z-axis direction and also to the LED unit LU side along the Y-axis direction. The chassis-side opening **28** is disposed so that an opening edge in the Y-axis direction is recessed so as to be farther away from the LEDs **16** with respect to the light entrance surface **19**b of the light guide plate **19**. As illustrated in FIG. **8**, the chassis-side opening **28** is formed in a wider range than that of the protrusion for power feeding **17**b of the LED board **17** in the X-axis direction, and, specifically, formed so that an overall area in the X-axis direction in a front view of the protrusion for power feeding **17**b and the board-side connector **22** (when viewed from a normal direction with respect to the plate surface of the LED board **17**) overlaps with the protrusion for power feeding **17**b and the board-side connector **22** and the protrusion for power feeding **17**b and the board-side connector **22** are positioned being closer to the left in FIG. **8** (closer to an end opposite to a direction in which the board-side connector **22** opens). In other words, the chassis-side opening **28** is formed so that the opening edge on the right side in FIG. **8** in the X-axis direction is disposed at a position between the protrusion for power feeding **17**b and the board-side connector **22** with a fixed interval (interval to an extent that the wiring-side connector **23** described below is allowed to be arranged). It may be said that a portion of the bottom plate portion **14**a of the chassis **14**, in which the chassis-side opening **28** is formed, forms the light guide plate non-support portion **30** which is not able to support the light guide plate **19** and the reflection sheet **20** from the rear side. In other words, an opening non-forming portion in which the chassis-side opening **28** is not formed (substantially overall area excluding the chassis-side opening **28**) in the bottom plate portion **14**a of the chassis **14** forms a light guide plate support portion **31** which is able to support the light guide plate **19** and the reflection sheet **20** from the rear side.

The heat dissipation member-side opening **29** is a through hole and has a rectangular shape in a plan view, as illustrated in FIG. **5**, FIG. **7** and FIG. **8**. A part of portions of the bottom wall portion **18**a**2**, the side wall portion **18**a**3** and the chassis-side heat dissipation portion **18**b of the heat dissipation member **18** overlapping with the chassis **14** and each of the connectors **22** and **23** in a plan view is inserted in the heat dissipation member-side opening **29**. Specifically, as illustrated in FIG. **7**, the heat dissipation member-side opening **29** is formed in a range extending from the bottom wall portion **18**a**2** of the heat dissipation member **18** to the chassis-side heat dissipation portion **18**b in the Y-axis direction, and an outside opening edge thereof is substantially flush with the mounting surface of the LED board **17**, while an inside opening edge thereof is disposed so as to be recessed to be farther away from the LEDs **16** with respect to the light entrance surface **19**b of the light guide plate **19** and is flush with an inside opening edge of the chassis-side opening **28**. The heat dissipation member-side opening **29** is formed in a wider range than that of the protrusion for power feeding **17**b of the LED board **17** in the X-axis direction, and has an opening edge which is substantially flush with the inside opening edge of the chassis-side opening **28**. Accordingly, the heat dissipation member-side opening **29** is formed so that an overall area in the X-axis direction in a front view of the protrusion for power feeding **17**b and the board-side connector **22** overlaps with the protrusion for power feeding **17**b and the board-side connector **22** and the protrusion for power feeding **17**b and the board-side connector **22** are positioned being closer to the left in FIG. **8**. In other words, the chassis-side opening **28** is formed so that the opening edge on the right side in FIG. **8** in the X-axis direction is disposed at a position between the protrusion for power feeding **17**b and the board-side connector **22** with a fixed interval. The heat dissipation member-side opening **29** is formed in the hole shape as described above, so that an opening edge thereof has an endless ring shape.

By setting a formation range of the chassis-side opening **28** and the heat dissipation member-side opening **29** in a plan view (a formation range in the X-axis direction and the Y-axis direction) as described above, it is possible to ensure an arrangement space in which the wiring-side connector **23** before being fitted to the board-side connector **22** is arranged in the X-axis direction (space for fitting work) as illustrated in FIG. **8**, and to allow a finger of an operator to enter the chassis-side opening **28** and the heat dissipation member-side opening **29** when inserting the wiring-side connector **23** into the chassis-side opening **28** and the heat dissipation member-side opening **29** in the Y-axis direction as illustrated in FIG. **7**. In this case, if a protrusion for power feeding in an LED board is formed so as to protrude to the outside on the rear side of the heat dissipation member **18**, the formation range of the chassis-side opening **28** and the heat dissipation member-side opening **29** is able to be reduced. However, a problem is thereby caused that thickness (dimension in the Z-axis direction) of the backlight device and the liquid crystal display device increases by an amount of protrusion of the protrusion for power feeding to the outside on the rear side of the heat dissipation member **18**. Thus, for decreasing thickness of the backlight device **12** and the liquid crystal display device **10**, it is useful to expand the formation range of the chassis-side opening **28** and the heat dissipation member-side opening **29** in a plan view compared to the arrangement range of the board-side connector **22** and the wiring-side connector **23** which are being fitted to each other.

Meanwhile, the chassis-side opening **28** as described above is formed in the bottom plate portion **14***a* of the chassis **14**, and the portion of the bottom plate portion **14***a* having the chassis-side opening **28** is the light guide plate non-support portion **30** that is not able to support the light guide plate **19**. Therefore, a portion of the reflection sheet **20** that is disposed between the light guide plate **19** and the bottom plate portion **14***a* and overlaps with the light guide plate non-support portion **30** may be deformed so as to be away from the opposite plate surface **19***c* of the light guide plate **19**. In particular, in order to cause the board-side connector **22** and the wiring-side connector **23** on the LED board **17** to be exposed to the outside and allow work for fitting the wiring-side connector **23**, the chassis-side opening **28**, which is the light guide plate non-support portion **30**, is formed in a range extending from the mounting surface of the LEDs **16** on the LED board **17** to a position opposite to the LEDs **16** with respect to the light entrance surface **19***b* in the Y-axis direction, and as a result thereof, disposed so as to overlap with a part of the extended reflection portion **20***a* in a plan view, in addition to a part of a main body part of the reflection sheet **20** (a part excluding the extended reflection portion **20***a*). Therefore, as illustrated in a comparative example of FIG. **9**, if a portion of the reflection sheet **20** overlapping with the chassis-side opening **28**, which is the light guide plate non-support portion **30** (including the extended reflection portion **20***a*), is deformed so as to be away from the opposite plate surface **19***c* of the light guide plate **19**, light from the LEDs **16** is reflected particularly by the extended reflection portion **20***a* of the separated portion. Accordingly, the reflection light enters the light guide plate **19** from the rear side thereof (through a gap between the light guide plate **19** and the separated portion of the reflection sheet **20**) and easily enters the light guide plate **19** through the opposite plate surface **19***c* (refer to a light path represented by a long dashed short dashed line in FIG. **9**). If the light directly incident on the opposite plate surface **19***c* from the rear side of the light guide plate **19** without passing through the light entrance surface **19***b* in this manner travels within the light guide plate **19** toward the light exit surface **19***a*, an incidence angle on the light exit surface **19***a* does not exceed a critical angle. Therefore, the light directly exits the light guide plate **19** through the light exit surface **19***a* (refer to the light path represented by a long dashed short dashed line in FIG. **9**), and a bright region is may be locally generated on the light exit surface **19***a* and may be visually recognized as luminance unevenness by a user (observer) of the backlight device **12** and the liquid crystal display device **10**. Note that, FIG. **9** is a cross-sectional view of the liquid crystal display device **10** according to the comparative example in which the reflection sheet **20** in which the "cutout portion **32**" as a characteristic structure described below according to the present embodiment is not formed is included, and the same reference signs as those of other figures (FIG. **1** to FIG. **8**) according to the present embodiment are described in FIG. **9** for convenience of description.

Thus, in the present embodiment, the cutout portion **32** is formed by cutting out at least a part of a portion of the extended reflection portion **20***a* overlapping with the chassis-side opening **28**, which is the light guide plate non-support portion **30**, in a plan view (when viewed from a normal direction with respect to the light exit surface **19***a*), as illustrated in FIG. **6** and FIG. **7**. By forming such a cutout portion **32** in the reflection sheet **20**, a portion of the extended reflection portion **20***a* is less likely to be separated from the opposite plate surface **19***c* of the light guide plate **19** due to the chassis-side opening **28**, which is the light guide plate non-support portion **30**, and it is hardly occurred that light from the LEDs **16** is reflected by the extended reflection portion **20***a* and directly enters the light guide plate **19** through the opposite plate surface **19***c*. Thereby, the light entering the light guide plate **19** through the opposite plate surface **19***c* is less likely to directly exit from the light guide plate **19** through the light exit surface **19***a* directly. Therefore, a bright region is less likely to be generated locally on the light exit surface **19***a* and luminance unevenness is less likely to be caused in the light from the light exit surface **19***a*.

Specifically, the reflection sheet **20** is formed, as illustrated in FIG. **6**, so that an opening size of the cutout portion **32** in the X-axis direction changes according to a position in the Y-axis direction and continuously decreases as being farther away from the LEDs **16** and, to the contrary, continuously increases as being closer to the LEDs **16**. In other words, the cutout portion **32** is formed so that a distance from a cutout edge thereof to the LEDs **16** in the Y-axis direction continuously increases as being closer to a center of the cutout portion **32** in the X-axis direction and, to the contrary, continuously decreases as being closer to both end sides of the cutout portion **32** in the X-axis direction. That is, an overall shape of the cutout portion **32** is triangular in a plan view and has a pair of cutout edges having an inclined shape. Each of the cutout edges is inclined with respect to both of the X-axis direction and the Y-axis direction and the pair cutout edges is a pair of inclined portions **33**. The pair of inclined portions **33** has a symmetrical shape and has a substantially V-shape, so that a plan shape of the cutout portion **32** is an isosceles triangle shape. In the reflection sheet **20** having the cutout portion **32**, an amount of reflection light locally decreases in the cutout portion **32**, so that an amount of light output through the light exit surface **19***a* of the light guide plate **19** may locally decrease and cause a dark region locally, and a great difference of luminance may be caused between the bright region and the dark region and visually recognized as luminance unevenness. As described before, in the reflection sheet **20** including the cutout portion **32** having the inclined portions **33** as the cutout edges, an area of the reflection sheet **20**, that is, an amount of reflection light reflecting off the reflection sheet **20** continuously changes in the X-axis direction. Therefore, compared to a configuration that a dimension of the cutout portion in the X-axis direction is constant or decreases in a stepwise manner as being farther away from the LEDs **16**, a dark region that may be caused in the light exit surface **19***a* of the light guide plate **19** by forming of the cutout portion **32** is less likely to be visually recognized. This is more suitable for suppressing occurrence of luminance unevenness. Note that, in each of the inclined portions **33** which are cutout edges of the cutout portion **32**, an intermediate portion intersects the light entrance surface **19***b* of the light guide plate **19** in a plan view, and the intersect part is disposed outside the chassis-side opening **28** (light guide plate non-support portion **30**) in the X-axis direction and arranged without overlapping.

Both ends of the cutout portion **32** in the X-axis direction, as illustrated in FIG. **6**, or one ends of the respective inclined portions **33** in the X-axis direction are continuous to the outer edge of the extended reflection portion **20***a* in the Y-axis direction at an obtuse angle, while another ends of the respective inclined portions **33** in the X-axis direction are continuous to each other at an obtuse angle in a center portion of the cutout portion **32** in the X-axis direction. As illustrated in FIG. **6** and FIG. **7**, the center portion of the cutout portion **32** in the X-axis direction (the other ends of both inclined portions **33** in the X-axis direction) has the cutout edge that is farthest from the LEDs **16** and is recessed so as to be farther away from the LEDs **16** with respect to the light entrance surface **19***b* of the light guide plate **19** in the Y-axis direction. That is, the cutout portion **32** is formed in an area in the extended reflection portion **20***a* and in a main body part of the reflection sheet **20** in the Y-axis direction. With such a configuration, compared to a configuration that the cutout edge of the cutout portion is closer to the LEDs **16** than the light entrance surface **19***b*, a portion of the extended reflection portion **20***a* is less likely to be separated from the opposite plate surface **19***c* of the light guide plate **19** due to the chassis-side opening **28** that is the light guide plate non-support portion **30**, and light from the LEDs **16** is less likely to reflect off the extended reflection portion **20***a* and directly enters the light guide plate **19** through the opposite plate surface **19***c*. Accordingly, luminance unevenness is suppressed more suitably. Further, compared to a configuration that the cutout edge of the cutout portion is flush with the light entrance surface **19***b*, the inclined portions **33**, which are the cutout edges, are less likely to be closer to the LEDs **16** than the light entrance surface **19***b*, even if the inclined portions **33**, which are the cutout edges of the cutout portion **32**, are arranged with positional errors because of tolerance of a dimension, tolerance of attachment or the like. Accordingly, occurrence of luminance unevenness is suppressed more suitably. In addition, since the cutout portion **32** is formed so that the other ends of the respective inclined portions **33** in the X-axis direction are disposed closer to the LEDs **16** than the edge of the chassis-side opening **28**, which is the light guide plate non-support portion **30**, in the Y-axis direction, reflection light reflecting off the reflection sheet **20** is sufficiently secured and use efficiency of light is less likely to be lowered, compared to a configuration that the cutout edge of the cutout portion is flush with the edge of the chassis-side opening **28**, which is the light guide plate non-support portion **30**, and an amount of reflection light reflecting off the reflection sheet **20** decreases so that use efficiency of light is lowered. Note that, when the cutout edge of the cutout portion **32** is disposed closer to the light entrance surface **19***b* than the edge of the chassis-side opening **28**, which is the light guide plate non-support portion **30**, a portion of the extended reflection portion **20***a* may be separated from the opposite plate surface **19***c* of the light guide plate **19** due to the chassis-side opening **28**, which is the light guide plate non-support portion **30**. However, the cutout edge of the cutout portion **32** is flush with the light entrance surface **19***b* or opposite to the LEDs **16** side with respect to the light entrance surface **19***b*. Accordingly, reflection light reflecting off the extended reflection portion **20***a* that extends so as to be closer to the LEDs **16** than the light entrance surface **19***b* is less likely to directly enter the light guide plate **19** through the opposite plate surface **19***c*, so that luminance unevenness is hard to be generated surely.

Moreover, the reflection sheet **20** is formed so as to have a formation range of the cutout portion **32** in the X-axis direction (direction along the light entrance surface **19***b*) greater than a formation range of the chassis-side opening **28**, which is the light guide plate non-support portion **30**, in the X-axis direction, and the cutout portion **32** overlaps with the light guide plate support portion **31** in the X-axis direction. Therefore, an amount of reflection light changes continuously between the portion of the extended reflection portion **20***a* overlapping with the chassis-side opening **28**, which is the light guide plate non-support portion **30**, and the portion of the extended reflection portion **20***a* overlapping with the light guide plate support portion **31**. Thereby, a dark region that may be generated in the light exit surface **19***a* of the light guide plate **19** due to the forming of the cutout portion **32** is hard to be visually recognized, and it is further suitable for suppressing occurrence of luminance unevenness. Even if the cutout portion **32** is formed with positional errors, for example, because of an influence of tolerance of a dimension, tolerance of attachment, or the like, the cutout portion **32** is likely to be disposed so as to appropriately overlap with the chassis-side opening **28**, which is the light guide plate non-support portion **30**, in the X-axis direction, so that an effect of suppressing luminance unevenness by the cutout portion **32** is achieved more reliably. Note that, the cutout portion **32** is formed so that the cutout edge is recessed so as to be farther away from the LEDs **16** with respect to the light entrance surface **19***b* at a part adjacent to an overlapping portion with the chassis-side opening **28**, which is the light guide plate non-support portion **30**, among an overlapping portion with the light guide support portion **31** in the extended reflection portion **20***a*, and the cutout edge is closer to the LEDs **16** than the light entrance surface **19***b* at the remaining part. Further, the reflection sheet **20** is formed so as to have a formation range of the cutout portion **32** in the X-axis direction (largest dimension) greater than a formation range of the cutout portion **32** in the Y-axis direction (direction from the LEDs **16** to the light entrance surface **19***b*) (largest dimension). Therefore, even if the cutout portion **32** is disposed with positional errors in the X-axis direction, for example, because of an influence of tolerance of a dimension, tolerance of attachment, or the like, the cutout portion **32** is likely to be disposed so as to appropriately overlap with the chassis-side opening **28**, which is the light guide plate non-support portion **30**, in the X-axis direction, thus an effect of suppressing luminance unevenness by the cutout portion **32** is achieved more reliably. If the formation range of the cutout portion in the Y-axis direction is greater than or same as the formation range of the cutout portion in the X-axis direction with dealing with the positional errors of the cutout portion that may be caused as described above, a formation range of the cutout portion in the Y-axis direction from the LEDs **16** tends to be excessively large. Accordingly, an amount of reflection light reflecting off the reflection sheet **20** may be decreased and use efficiency of light may be lowered. On the other hand, if the formation range of the cutout portion **32** in the X-axis direction is greater than the formation range of the cutout portion **32** in the Y-axis direction, an effect of suppressing luminance unevenness by the cutout portion **32** is achieved more reliably as described above while use efficiency of light is sufficiently ensured.

The liquid crystal display device **10** of the present embodiment has a structure as described above, and operations thereof will be described subsequently. For attachment of the liquid crystal display device **10**, the LED unit LU is attached by attaching the LED board **17**, on which the LEDs **16** and the board-side connector **22** is mounted in advance, to the heat dissipation member **16**. The reflection sheet **20** and the light guide plate **19** are housed in the chassis **14** and each LED unit LU is attached to a long-side end of the chassis **14**, in which the first side plate portion **14***b* is provided. Thereafter, by attaching the second frame **21** to which each of the cushion materials **25** to **27** is attached to the chassis **14** in advance, the cushion material for the light guide plate **25** is disposed so as to be positioned between the second frame main body **21***a* and the outer peripheral end of the light guide pate **19** and the light guide plate **19** is supported from the front side by the second frame **21** through the cushion material for the light guide plate **25**. Then, after the optical sheet **15** is placed on the third step portion **21***a***3** of the second frame main body **21***a* through the cushion material for the optical sheet **27**, the liquid crystal panel **11** is placed on the second step portion **21***a***2** through the cushion material for the liquid crystal panel **26** and the first frame **13** is further placed on the first step portion **21***a***1**. When the first frame **13** is attached to the second frame **21**, attachment of main components of the liquid crystal display device **10** is completed.

In the liquid crystal display device **10** to which attachment is performed as described above, work for connecting the wiring member **24** in order to feed power to the LED units LU of the backlight device **12** is carried out. An operator who carries out the work for connection, while holding the wiring-side connector **23** provided at an end of the wiring member **24** so as to sandwich with his/her finger, inserts the wiring-side connector **23** into the backlight device **12** through the chassis-side opening **28** and the heat dissipation member-side opening **29** that are respectively formed in the chassis **14** and the heat dissipation member **18**, which form the backlight device **12**, so as to open toward the outside of the rear side. At this time, in the chassis-side opening **28** and the heat dissipation member-side opening **29**, as illustrated in FIG. **7**, the opening edges on the outside in the Y-axis direction are substantially flush with the mounting surface of the LED board **17** and the opening edges on the inner side are recessed so as to be farther away from the LEDs **16** side with respect to the light entrance surface **19***b* of the light guide plate **19**, and as illustrated in FIG. **8**, the opening edge on the right side in the X-axis direction has an interval to an extent that the wiring-side connector **23** is allowed to be arranged between the protrusion for power feeding **17***b* and the board-side connector **22**, so that work for fitting the wiring-side connector **23** to the board-side connector **22** from the right side to the left side in FIG. **8** is able to be carried out while inserting the finger of the operator gripping the wiring-side connector **23** into the chassis-side opening **28** and the heat dissipation member-side opening **29**, thus workability becomes excellent.

When power of the liquid crystal display device **10** which is manufactured as described above is turned on, a signal associated with an image is supplied from a panel driving circuit board for driving the liquid crystal panel **11** to the liquid crystal panel **11**, and power is supplied from the LED driving circuit board to each of the LEDs **16** on the LED board **17** through the wiring member **24**, the wiring-side connector **23** and the board-side connector **22**, so that each of the LEDs **16** is turned on. As illustrated in FIG. **3**, light emitted from each of the LEDs **16** is guided by the light guide plate **19** and transmitted through the optical sheet **15**, and thereby irradiated to the liquid crystal panel **11** after being converted into flat planar light, so that a predetermined image is displayed in a display area of the liquid crystal panel **11**.

To describe operations associated with the backlight device **12** in detail, when each of the LEDs **16** is turned on, as illustrated in FIG. **3**, light emitted from each of the LEDs **16** enters the light guide plate **19** through the light entrance surface **19***b*, and then, in a process of totally reflecting off an interface between the light guide plate **19** and an outside air layer or propagating in the light guide plate **19** with reflecting off the reflection sheet **20**, the light exit performance through the light exit surface **19***a* is improved by a light reflection pattern. In this embodiment, the reflection sheet **20** has the extended reflection portion **20***a* which extends so as to be closer to the LEDs **16** side than the light entrance surface **19***b* and light that exists in a space between the LEDs **16** and the light entrance surface **19***b* reflects off the extended reflection portion **20***a*. Therefore, the reflected light is able to enter through the light entrance surface **19***b* efficiently, thus making it possible to achieve high light entering efficiency for the light entrance surface **19***b*. Thus, improvement in luminance and reduction in power consumption are accomplished.

On the other hand, as illustrated in FIG. **7**, the chassis-side opening **28** is formed in the bottom plate portion **14***a* of the chassis **14** in order to feed power to the LED board **17** and the formation part is the light guide plate non-support portion **30** which does not support the light guide plate **19**. Thus, a portion of the reflection sheet **20** overlapping with the chassis-side opening **28**, which is the light guide plate non-support portion **30**, is not supported from the rear side and is therefore easily deformed so as to be separated from the opposite plate surface **19***c* of the light guide plate **19**. In particular, if the extended reflection portion **20***a* is included in the overlapping portion of the reflection sheet **20** overlapping with the chassis-side opening **28**, the light reflected by the extended reflection portion **20***a* that has been deformed so as to be separated from the opposite plate surface **19***c* is directed to the rear side of the light guide plate **19** (a gap between the light guide plate **19** and the separated portion of the reflection sheet **20**) and directly enters through the opposite plate surface **19***c* and then directly exits through the light exit surface **19***a*, so that local bright region, that is, luminance unevenness may be caused (refer to FIG. **9**). In the present embodiment, since the cutout portion **32** is formed in the reflection sheet **20** by cutting out at least a part of a portion of the extended reflection portion **20***a* overlapping with the chassis-side opening **28**, which is the light guide plate non-support portion **30**, a portion of the extended reflection portion **20***a* is less likely to be separated from the opposite plate surface **19***c* of the light guide plate **19** due to the chassis-side opening **28**, and light from the LEDs **16** is less likely to reflect off the extended reflection portion **20***a* and less likely to directly enter through the opposite plate surface **19***c*. Thereby, a bright region is hard to be locally generated on the light exit surface **19***a*, so that luminance unevenness is less likely to be visually recognized by a user (observer) of the liquid crystal display device **10**. Note that, as illustrated with a long dashed double-short dashed line of FIG. **7**, even if the portion of the reflection sheet **20** overlapping with the chassis-side opening **28**, which is the light guide plate non-support portion **30**, is deformed so as to be separated from the opposite plate surface **19***c* of the light guide plate **19**, the deformed portion does not include the extended reflection portion **20***a*, so that the light from the LEDs **16** is hardly irradiated directly to the deformed portion without passing through the light guide plate **19**. Accordingly, the light from the LEDs **16** is less likely to reflect off the deformed portion and less likely to directly enter through the opposite plate surface **19***c* of the light guide plate **19**, and even if the light enters, an amount thereof is quite small, so that a local bright region is hardly caused.

Furthermore, since the cutout edge of the cutout portion **32** is disposed so as to be recessed to be farther away from the LEDs **16** with respect to the light entrance surface **19***b* of the light guide plate **19** as illustrated in FIG. **7**, a portion of the extended reflection portion **20***a* is further less likely to be separated from the opposite plate surface **19***c* of the light guide plate **19** due to the chassis-side opening **28**, which is more suitable for suppression of luminance unevenness, and in addition thereto, the cutout edge of the cutout portion **32** is less likely to be disposed closer to the LEDs **16** than the light entrance surface **19***b* because of an influence of tolerance of a dimension of the reflection sheet **20**, tolerance of attachment of the reflection sheet **20** to the chassis **14**, or the like, which is further suitable for suppression of luminance unevenness. Further, since a dimension (an opening size) of the cutout portion **32** in the X-axis direction continuously decreases as being farther away from the LEDs **16** as illustrated in FIG. **6**, a dark region which may be caused in the light exit surface **19***a* due to formation of the cutout portion **32** is less likely to be visually recognized by the user of the liquid crystal display device **10**, thus making it possible to further suitably suppress luminance unevenness. Then, since the formation range of the cutout portion **32** in the X-axis direction is greater than the formation range of the chassis-side opening **28**, which is the light guide plate non-support portion **30**, an amount of reflection light changes continuously between the portion of the extended reflection portion **20***a* overlapping with the chassis-side opening **28** and the portion of the extended reflection portion **20***a* overlapping with the light guide plate support portion **31**, thus a dark region that may be caused in the light exit surface **19***a* due to formation of the cutout portion **32** is less likely to be visually recognized by the user of the liquid crystal display device **10**, thus making it possible to suppress luminance unevenness much further suitably. Moreover, since the formation range of the cutout portion **32** in the X-axis direction is greater than the formation range of the cutout portion **32** in the Y-axis direction, even if positional errors of the cutout portion **32** in the X-axis direction may be caused because of an influence of tolerance of a dimension of the reflection sheet **20**, tolerance of attachment of the reflection sheet **20** to the chassis **14**, or the like, the cutout portion **32** is likely to overlap with the chassis-side opening **28**, which is the light guide plate non-support portion **30**, in the X-axis direction, thus an effect of suppressing luminance unevenness by the cutout portion **32** is achieved more reliably.

As described above, the backlight device (lighting device) **12** of the present embodiment includes: the LED (light source) **16**; the light guide plate **19** having a plate shape and having at least one edge surface as the light entrance surface **19***b* through which light from the LED **16** enters, one plate surface as the light exit surface **19***a* through which light exits the light guide plate, and another plate surface as the opposite plate surface **19***c* being opposite to the light exit surface **19***a*; the chassis **14** having the bottom plate portion **14***a* that includes the light guide plate support portion **31** for supporting the light guide plate **19** from a side of the opposite plate surface **19***c* and the light guide plate non-support portion **30** for not supporting the light guide plate **19** from the side of the opposite plate surface **19***c*; and the reflection sheet (reflection member) **20** that is disposed between the opposite plate surface **19***c* of the light guide plate **19** and the bottom plate portion **14***a* of the chassis **14** and reflects light travelling through the light guide plate **19** toward the light exit surface **19***a*, the reflection sheet **20** having the extended reflection portion **20***a* which extends closer to the LED **16** than the light entrance surface **19***b* of the light guide plate **19** and having the cutout portion **32** that is formed by cutting out at least a part of a portion of the extended reflection portion **20***a* overlapping with the light guide plate non-support portion **30**.

Thereby, light emitted from the LEDs **16** enters the light guide plate **19** through the light entrance surface **19***b*, and is then, for example, reflected toward the light exit surface **19***a* by the reflection sheet **20** that is disposed between the opposite plate surface **19***c* opposite to the light exit surface **19***a* and the bottom plate portion **14***a* of the chassis **14**, and thereby propagating in the light guide plate **19** and then exits through the light exit surface **19***a*. Since the reflection sheet **20** has the extended reflection portion **20***a* that extends so as to be closer to the LEDs **16** than the light entrance surface **19***b* of the light guide plate **19**, by reflecting the light from the LEDs **16** by the extended reflection portion **20***a*, light entering efficiency for the light entrance surface **19***b* is enhanced. On the other hand, since the bottom plate portion **14***a* of the chassis **14** has the light guide plate support portion **31** that supports the light guide plate **19** from the side of the opposite plate surface **19***c* and the light guide plate non-support portion **30** that does not support the light guide plate **19** from the side of the opposite plate surface **19***c*, if the portion overlapping with the light guide plate non-support portion **30** is included in the extended reflection portion **20***a*, the overlapping portion may be separated from the opposite plate surface **19***c* and the separated portion reflects the light from the LEDs **16** to cause the light to enter the opposite plate surface **19***c* directly, so that the entering light is likely to directly exit from the light exit surface **19***a* to cause a locally bight region, that is, luminance unevenness.

In this embodiment, since the cutout portion **32** is formed in the reflection sheet **20** by cutting out at least a part of the portion of the extended reflection portion **20***a* overlapping with the light guide plate non-support portion **30**, so that a portion of the extended reflection portion **20***a* is less likely to be separated from the opposite plate surface **19***c* of the light guide plate **19** due to the light guide plate non-support portion **30**, and light from the LEDs **16** is less likely to reflect off the extended reflection portion **20***a* and less likely to directly enter through the opposite plate surface **19***c*. Thereby, the light which has entered through the opposite plate surface **19***c* is less likely to directly exit through the light exit surface **19***a*, so that luminance unevenness is hard to be caused in the light output through the light exit surface **19***a*.

The reflection sheet **20** is formed so that the cutout edge of the cutout portion **32** is disposed so as to be opposite to the LEDs **16** with respect to the light entrance surface **19***b*. According to such a configuration, compared to a configuration that the cutout edge of the cutout portion is closer to the LEDs **16** than the light entrance surface **19***b*, a portion of the extended reflection portion **20***a* is less likely to be separated from the opposite plate surface **19***c* of the light guide plate **19** due to the light guide plate non-support portion **30**, and light from the LEDs **16** is less likely to reflect off the extended reflection portion **20***a* and less likely to directly enter through the opposite plate surface **19***c*, thus making it possible to suppress luminance unevenness more suitably. Further, compared to a configuration that the cutout edge of the cutout portion is flush with the light entrance surface **19***b*, the cutout edge is less likely to be closer to the LEDs **16** than the light entrance surface **19***b* even if positional errors may be caused in arrangement of the cutout edge of the cutout portion **32** because of tolerance of a dimension, tolerance of attachment or the like, thus making it possible to suppress occurrence of luminance unevenness more suitably.

The light guide plate non-support portion **30** is formed so that an edge thereof is disposed on an opposite side to the LEDs **16** with respect to the light entrance surface **19***b*, and the reflection sheet **20** is formed so that the cutout edge of the cutout portion **32** is disposed so as to be closer to the light entrance surface **19***a* than the edge of the light guide plate non-support portion **30**. Thereby, the reflection light reflecting off the reflection sheet **20** is sufficiently secured and use efficiency of light is less likely to be lowered, compared to a configuration that the cutout edge of the cutout portion is flush with the edge of the light guide plate non-support portion **30** and an amount of reflection light reflecting off the reflection sheet **20** decreases so that use efficiency of light is lowered. Note that, when the cutout edge of the cutout portion **32** is disposed so as to be closer to the light entrance surface **19***b* than the edge of the light guide plate non-support portion **30**, the portion of the extended reflection portion **20***a* may be separated from the opposite plate surface **19***c* of the light guide plate **19** due to the light guide plate non-support portion **30**. However, the cutout edge of the cutout portion **32** is flush with the light entrance surface **19***b* or opposite to the LEDs **16** with respect to the light entrance surface **19***b* and therefore, the reflection light reflecting off the extended reflection portion **20***a* extending closer to the LEDs **16** than the light entrance surface **19***b* is less likely to directly enter the light guide plate **19** through the opposite plate surface **19***c*, so that luminance unevenness becomes sufficiently hard to be caused.

The reflection sheet **20** is formed so that a dimension (an opening size) of the cutout portion **32** in the direction along the light entrance surface **19***b* continuously decreases as being farther away from the LEDs **16**. Thereby, an area of the reflection sheet **20**, that is, an amount of reflection light reflecting off the reflection sheet **20** in the direction along the light entrance surface **19***b* continuously changes, so that compared to a configuration that a dimension of the cutout portion in the direction along the light entrance surface **19***b* is constant or a configuration that the dimension decreases in a stepwise manner as being farther away from the LEDs **16**, a dark region that may be caused in the light exit surface **19***a* due to the cutout portion **32** is less likely to be visually recognized, which is more suitable for suppressing occurrence of luminance unevenness.

The reflection sheet **20** is formed so that a formation range of the cutout portion **32** in the direction along the light entrance surface **19***b* becomes greater than the formation range of the light guide plate non-support portion **30** in the direction. Thereby, since the cutout portion **32** extends to have a formation range overlapping with the light guide plate support portion **31** in the direction along the light entrance surface **19***b*, an amount of reflection light changes continuously between the portion of the extended reflection portion **20***a* overlapping with the light guide plate non-support portion **30** and the portion of the extended reflection portion **20***a* overlapping with the light guide plate support portion **31**. Thereby, a dark region that may be caused in the light exit surface **19***a* due to the cutout portion **32** is less likely to be visually recognized, which is further suitable for suppressing occurrence of luminance unevenness. Even if positional errors may be caused in arrangement of the cutout portion **32** because of tolerance of a dimension, tolerance of attachment, or the like, the cutout portion **32** is likely to be disposed so as to appropriately overlap with the light guide plate non-support portion **30** in the direction along the light entrance surface **19***b*, so that an effect of suppressing luminance unevenness by the cutout portion **32** is achieved more reliably.

Moreover, the reflection sheet **20** is formed so as to have a formation range of the cutout portion **32** in the direction along the light entrance surface **19***b* greater than a formation range of the cutout portion **32** in the direction from the LEDs **16** to the light entrance surface **19***b*. Thereby, even if positional errors may be caused in arrangement of the cutout portion **32** in the direction along the light entrance surface **19***b* because of tolerance of a dimension, tolerance of attachment, or the like, the cutout portion **32** is likely to be disposed so as to appropriately overlap with the light guide plate non-support portion **30** in the direction along the light entrance surface **19***b*, so that an effect of suppressing luminance unevenness by the cutout portion **32** is achieved more reliably. In this case, if the formation range of the cutout portion in the direction from the LEDs **16** to the light entrance surface **19***b* is greater than or same as the formation range of the cutout portion in the direction along the light entrance surface **19***b* with dealing with the positional errors that may be caused as described above in the arrangement of the cutout portion, the formation range of the cutout portion in the direction from the LEDs **16** to the light entrance surface **19***b* tends to be excessively large and an amount of reflection light reflecting off the reflection sheet **20** decreases, so that use efficiency of light is likely to be lowered. Compared to this, if the formation range of the cutout portion **32** in the direction along the light entrance surface **19***b* is greater than the formation range of the cutout portion **32** in the direction from the LEDs **16** to the light entrance surface **19***b*, an effect of suppressing luminance unevenness by the cutout portion **32** as described above is achieved more reliably while sufficiently ensuring use efficiency of light.

The light guide plate non-support portion **30** includes the chassis-side opening (opening) **28** which opens toward the bottom plate portion **14***a*. Thereby, compared to a configuration that the light guide plate non-support portion has a concave portion that is formed by recessing the bottom plate portion **14***a*, a portion of the extended reflection portion **20***a* may be likely to be separated from the opposite plate surface **19***c* of the light guide plate **19** due to the chassis-side opening **28**, which is the light guide plate non-support portion **30**, and a distance of the separation tends to be greater. However, the reflection sheet **20** including the cutout portion **32** is less likely to have such a problem, thus making it possible to effectively suppress luminance unevenness.

The LED board (light source board) **17** on which the LED **16** is mounted, and the board-side connector **22** and the wiring-side connector **23** (power feed portion) for feeding power to the LED **16** on the LED board **17** are included, in which the bottom plate portion **14***a* is formed so that the chassis-side opening **28** causes the board-side connector **22** and the wiring-side connector **23** to be exposed to outside. Thereby, when the chassis-side opening **28** is formed so as to cause the board-side connector **22** and the wiring-side connector **23** to be exposed to outside in the bottom plate portion **14***a*, it is possible to pass the wiring-side connector **23** through the chassis-side opening **28** easily. In this manner, the chassis-side opening **28** which allows passing the wiring-side connector **23** therethrough is disposed near the

LED board **17** and the light entrance surface **19***b* of the light guide plate **19** in the bottom plate portion **14***a*, and thus is easy to be disposed necessarily so as to overlap also with the extended reflection portion **20***a* of the reflection sheet **20**. However, in the reflection sheet **20** having the cutout portion **32**, a portion of the extended reflection portion **20***a* is less likely to be separated from the opposite plate surface **19***c* of the light guide plate **19** due to the chassis-side opening **28**, which is the light guide plate non-support portion **30**, and light from the LEDs **16** is less likely to reflect off the extended reflection portion **20***a* and is less likely to directly enter through the opposite plate surface **19***c*, thus making it possible to effectively suppress luminance unevenness.

The LED board **17** has the LED mounting portion (light source mounting portion) **17***a* on which the LEDs **16** are mounted, and the protrusion for power feeding **17***b* which protrudes from the LED mounting portion **17***a* along a direction from a side of the light exit surface **19***a* to a side of the opposite plate surface **19***c* and in which the board-side connector **22** and the wiring-side connector **23** are disposed, in which the bottom plate portion **14***a* is formed so that the board-side connector **22**, the wiring-side connector **23**, and the protrusion for power feeding **17***b* are exposed to outside through the chassis-side opening **28**. Thereby, compared to a configuration that the board-side connector and the wiring-side connector are arranged in a part of the LED mounting portion **17***a* and the LED mounting portion **17***a* includes a portion having no LED **16**, with a configuration including the protrusion for power feeding **17***b* where the board-side connector **22** and the wiring-side connector **23** are disposed so as to be projected from the LED mounting portion **17***a* along the direction from the side of the light exit surface **19***a* to the side of the opposite plate surface **19***c*, the LED mounting portion **17***a* may not include the portion having no LED **16** thereon, so that a portion in which an amount of irradiated light from the LEDs **16** decreases locally is less likely to be generated in the light entrance surface **19***b* of the light guide plate **19**. Thereby, even if a frame of the backlight device **12** is increasingly narrowed and the LEDs **16** and the light entrance surface **19***b* have a closer positional relation, a dark region is less likely to be generated in light output from the light exit surface **19***a*, thus making it possible to suppress generation of luminance unevenness associated with narrowing of the frame. In addition, since the protrusion for power feeding **17***b* protruding from the LED mounting portion **17***a* along the direction from the side of the light exit surface **19***a* to the side of the opposite plate surface **19***c*, and the board-side connector **22** and the wiring-side connector **23** disposed thereon are exposed to outside through the chassis-side opening **28** that is formed in the bottom plate portion **14***a*, so that sufficiently enhanced workability when the wiring-side connector **23** is passed through the chassis-side opening **28** is also achieved.

The bottom plate portion **14***a* is formed so that an opening edge of the chassis-side opening **28** is disposed so as to be opposite to the LEDs **16** with respect to the light entrance surface **19***b*. Thereby, even if a protrusion dimension by which the protrusion for power feeding **17***b* protrudes from the LED mounting portion **17***a* is small, a sufficiently large formation range of the chassis-side opening **28** is ensured so that the opening edge is disposed so as to be opposite to the LEDs **16** with respect to the light entrance surface **19***b*, so that excellent workability is achieved for working of passing the wiring-side connector **23** through the chassis-side opening **28**. When the protrusion dimension by which the protrusion for power feeding **17***b* protrudes from the LED mounting portion **17***a* is reduced, reduction in thickness of the backlight device **12** is accomplished.

The liquid crystal display device (display device) **10** according to the present embodiment includes the backlight device **12**, and the liquid crystal panel (display panel) **11** which displays an image by using light from the backlight device **12**. With such a liquid crystal display device **10**, luminance unevenness of the backlight device **12** is suppressed. Thus, the display device of the invention has excellent display quality associated with the image displayed on the liquid crystal panel **11** and is suitable for an increase in screen size.

A television device TV according to the present embodiment includes the liquid crystal display device **10** described above. With such a television device TV, luminance unevenness of the backlight device **12** included in the liquid crystal display device **10** is suppressed. Thus, the display device of the invention has excellent display quality associated with a television image displayed on the liquid crystal panel **11** and is suitable for an increase in screen size.

<Embodiment 2>

Embodiment 2 of the invention will be described with FIG. **10** or FIG. **11**. Embodiment 2 indicates a cutout portion **132** whose formation range in the Y-axis direction is changed. Note that, overlapping description for structures, actions, and effects similar to those of Embodiment 1 described above will be omitted.

As illustrated in FIG. **10** and FIG. **11**, a reflection sheet **120** according to the present embodiment is formed so that the cutout portion **132** has a center portion in the X-axis direction having a cutout edge with a greatest distance from the LEDs **116** and the cutout edge of the center portion is flush with a light entrance surface **119***b* of a light guide plate **119** in the Y-axis direction. That is, the cutout portion **132** is selectively disposed only in an extended reflection portion **120***a* in the Y-axis direction and is not formed in a main body portion (portion excluding the extended reflection portion **120***a*) of the reflection sheet **120**. Even with such a configuration, compared to a configuration that the cutout edge of the cutout portion is formed so as to protrude to be closer to the LEDs **116** than the light entrance surface **119***b*, a portion of the extended reflection portion **120***a* is less likely to be separated from an opposite plate surface **119***c* of the light guide plate **119** due to a chassis-side opening **128**, which is a light guide plate non-support portion **130**, and light from the LEDs **116** is less likely to reflect off the extended reflection portion **120***a* and less likely to directly enter through the opposite plate surface **119***c*, thus making it possible to suppress luminance unevenness more suitably.

According to the present embodiment described above, the reflection sheet **120** is formed so that the cutout edge of the cutout portion **132** is disposed so as to be flush with the light entrance surface **119***b*. Thereby, compared to a configuration that the cutout edge of the cutout portion is formed so as to protrude to be closer to the LEDs **116** than the light entrance surface **119***b*, a portion of the extended reflection portion **120***a* is less likely to be separated from the opposite plate surface **119***c* of the light guide plate **119** due to the light guide plate non-support portion **130**, and light from the LEDs **116** is less likely to reflect off the extended reflection portion **120***a* and less likely to directly enter through the opposite plate surface **119***cr*, thus making it possible to suppress luminance unevenness more suitably.

<Embodiment 3>

Embodiment 3 of the invention will be described with FIG. **12**. Embodiment 3 indicates a cutout portion **232** whose plan shape is changed from that of Embodiment 1 described above. Note that, overlapping description for structures, actions, and effects similar to those of Embodiment 1 described above will be omitted.

As illustrated in FIG. **12**, a reflection sheet **220** according to the present embodiment is formed so that a plan shape of the cutout portion **232** is substantially trapezoid shape (specifically, even-leg trapezoid). Accordingly, a cutout edge of the cutout portion **232** includes a pair of inclined portions **233**, and a straight portion **34** that connects center-side ends of the pair of inclined portions **233** of the cutout portion **232** and is almost straight along the X-axis direction. The cutout portion **232** is formed so that a distance from the cutout edge to LEDs **216** in the Y-axis direction continuously increases as being closer to the straight portion **34** in the X-axis direction and, to the contrary, continuously decreases as being farther away from the straight portion **34** in the X-axis direction in a formation rage of each of the inclined portion **233**. On the other hand, the cutout portion **232** has a formation range of the straight portion **34** in which a distance from the cutout edge to the LEDs **216** in the Y-axis direction is constant over an entire area. The distance is longer than a distance from a light entrance surface **219***b* to the LEDs **216** in the Y-axis direction. With such a configuration, since an area of the cutout portion **232** formed in an extended reflection portion **220***a* is relatively larger than what is described in Embodiment 1 above, a portion of the extended reflection portion **220***a* is further less likely to be separated from an opposite plate surface of a light guide plate **219** due to a chassis-side opening **228**, which is a light guide plate non-support portion **230**, thus making it possible to suppress luminance unevenness more suitably.

<Embodiment 4>

Embodiment 4 of the invention will be described with FIG. **13**. Embodiment 4 indicates a cutout portion **332** whose plan shape is changed from that of Embodiment 1 described above. Note that, overlapping description for structures, actions, and effects similar to those of Embodiment 1 described above will be omitted.

As, illustrated in FIG. **13**, a reflection sheet **320** according to the present embodiment is formed so that a plan shape of the cutout portion **332** is a substantially bow shape and a cutout edge thereof is a circular arc portion **35**. The cutout portion **332** is formed so that the circular arc portion **35**, which is the cutout edge, is recessed so as to be farther away from LEDs **316** and any tangent lines thereof have an inclined shape to the X-axis direction and the Y-axis direction (in which, a contact line to a center portion of the circular arc portion **35** in the X-axis direction is excluded). That is, the cutout portion **332** is formed so that a center of a circle including the circular arc portion **35** which forms the cutout edge is positioned so as to be closer to the LEDs **316** with respect to the cutout edge in the Y-axis direction. In such a configuration as well, similarly to Embodiment 1 described above, the cutout portion **332** is formed so that a dimension in the X-axis direction continuously decreases as being farther away from the LEDs **316**, thus making it possible to achieve effect of suppressing luminance unevenness similar to Embodiment 1.

<Embodiment 5>

Embodiment 5 of the invention will be described with FIG. **14**. Embodiment 5 indicates a cutout portion **432** whose plan shape is further changed from that of Embodiment 4 described above. Note that, overlapping description for structures, actions, and effects similar to those of Embodiment 4 described above will be omitted.

As illustrated in FIG. **14**, a reflection sheet **420** according to the present embodiment is formed so that a plan shape in the cutout portion **432** is a substantially V-shape and a cutout edge thereof includes a pair of circular arc portions **435**. The cutout edge **432** is formed so that the pair of circular arc portions **435**, which is the cutout edge, each projects to LEDs **416** side, and any tangent lines thereof have an inclined shape to the X-axis direction and the Y-axis direction. That is, the cutout portion **432** is formed so that a center of a circle including each circular arc portion **435** which forms the cutout edge is positioned so as to be opposite to the LEDs **416** with respect to the cutout edge in the Y-axis direction.

<Embodiment 6>

Embodiment 6 of the invention will be described with FIG. **15**. Embodiment 6 indicates a cutout portion **532** whose plan shape is changed from that of Embodiment 1 described above. Note that, overlapping description for structures, actions, and effects similar to those of Embodiment 1 described above will be omitted.

As illustrated in FIG. **15**, a reflection sheet **520** according to the present embodiment is formed so as to have a configuration in which inclined portions **533** that form a cutout edge of the cutout portion **532** are bent in the middle so that inclination angles to the X-axis direction and the Y-axis direction change in the middle. Each of the inclined portions **533** includes a first inclined portion **36** that is disposed in the center side of the cutout portion **532** in the X-axis direction and a second inclined portion **37** that is disposed in the end side of the cutout portion **532** in the X-axis direction, and is configured so that the inclination angles to the X-axis direction and the Y-axis direction change in two steps. The first inclined portion **36** is formed so that an inclination angle formed with respect to the Y-axis direction is smaller than an inclination angle formed with respect to the Y-axis direction of the second inclined portion **37** and an inclination angle formed with respect to the X-axis direction is larger than an inclination angle formed with respect to the X-axis direction of the second inclined portion **37**. In such a configuration as well, similarly to Embodiment 1 described above, the cutout portion **532** is formed so that a dimension in the X-axis direction continuously decreases as being farther away from LEDs **516**, thus making it possible to achieve effect of suppressing luminance unevenness similar to Embodiment 1.

<Embodiment 7>

Embodiment 7 of the invention will be described with FIG. **16** or FIG. **17**. Embodiment 7 indicates a cutout portion **632** whose formation range in the Y-axis direction is further changed from that of Embodiment 2 described above. Note that, overlapping description for structures, actions, and effects similar to those of Embodiment 2 described above will be omitted.

As illustrated in FIG. **16** and FIG. **17**, a reflection sheet **620** according to the present embodiment is formed so that a cutout edge of a center portion of the cutout portion **632** in the X-axis direction has a longest distance from LEDs **616** and the cutout edge is arranged closer to the LEDs **616** than a light entrance surface **619***b* of a light guide plate **619** in the Y-axis direction. Even with such a configuration, since a portion of an extended reflection portion **620***a*, which is the closest to the LEDs **616**, is cut out by forming the cutout portion **632**, compared to a configuration without having a cutout portion, a portion of the extended reflection portion **620***a* is less likely to be separated from an opposite plate surface **619***c* of the light guide plate **619** due to a chassis-side opening **628**, which is a light guide plate non-support portion **630**, and light from the LEDs **616** is less likely to reflect off the extended reflection portion **620***a* and less likely to directly enter through the opposite plate surface **619***c*, thus making it possible to suppress luminance unevenness more suitably.

<Embodiment 8>

Embodiment 8 of the invention will be described with FIG. **18** or FIG. **19**. Embodiment 8 indicates a bottom plate portion **714***a* of a chassis **714** in which a reinforcement rib **38** is formed compared to Embodiment 1 described above. Note that, overlapping description for structures, actions, and effects similar to those of Embodiment 1 described above will be omitted.

As illustrated in FIG. **18** and FIG. **19**, the bottom plate portion **714***a* forming the chassis **714** according to the present embodiment is provided with the reinforcement rib (recessed portion) **38** that is partially recessed to the rear side. The reinforcement rib **38** is formed integrally with the bottom plate portion **714***a* by performing drawing, and has a cross-sectional shape in a substantially trapezoid shape in which a bottom portion is disposed behind the bottom plate portion **714***a*. The reinforcement rib **38** is formed so as to be disposed in the bottom plate portion **714***a* at a position of being adjacent to a chassis-side opening **728** and so that a formation range in the X-axis direction is larger than a formation range in the X-axis direction of the chassis-side opening **728**. Specifically, the reinforcement rib **38** includes a first reinforcement portion **38***a*, a pair of second reinforcement portions **38***b*, and a pair of third reinforcement portions **38***c*. The first reinforcement portion **38***a* is formed so as to surround the chassis-side opening **728** in a plan view and extends along the X-axis direction and has a length dimension greater than a dimension of the chassis-side opening **728** in the X-axis direction. The pair of second reinforcement portions **38***b* extends toward LEDs **716** from respective ends of the first reinforcement portion **38***a* in a length direction. The pair of third reinforcement portions **38***c* extends so as to be mutually away from an extended end of each of the second reinforcement portions **38***b* along the X-axis direction. Among them, the first reinforcement portion **38***a* is arranged to overlap with an entire area of the chassis-side opening **728** in the X-axis direction, while the second reinforcement portions **38***b* and the third reinforcement portions **38***c* are arranged to partially overlap with the chassis-side opening **728** in the Y-axis direction. When such a reinforcement rib **38** is formed in the bottom plate portion **714***a*, reduction in strength, which is caused in the bottom plate portion **714***a* as the chassis-side opening **728** is formed, is able to be compensated for.

However, if the reinforcement rib **38** as described above is formed in the bottom plate portion **714***a*, according to processing thereof, a deformation portion **39** caused by warpage or bending may be formed in a portion of the bottom plate portion **714***a* adjacent to the reinforcement rib **38**, and the deformation portion **39** may be likely to be formed particularly at a position closer to an outer edge of the bottom plate portion **714***a* with respect to the reinforcement rib **38**. If the deformation portion **39** is formed at the position closer to the outer edge of the bottom plate portion **714***a* with respect to the reinforcement rib **38**, the deformation portion **39** is likely to be arranged so as to overlap with an extended reflection portion **720***a* of the reflection sheet **720** in a plan view. The deformation portion **39** has a distance from an opposite plate surface **719***c* of a light guide plate **719** relatively greater than a distance between the opposite plate surface **719***c* of the light guide plate **719** and a light guide plate support portion **731**, so that the reinforcement rib **38** and the deformation portion **39** constitute a second light guide plate non-support portion **40** that does not support the light guide plate **719**. On the other hand, in the present embodiment, a cutout portion **732** of the reflection sheet **720** is formed in a range of the extended reflection portion **720***a* overlapping not only with the chassis-side opening **728**, which is a light guide plate non-support portion **730**, but also with the deformation portion **39** included in the second light guide plate non-support portion **40** in a plan view. Thereby, a portion of the extended reflection portion **720***a* is less likely to be separated from the opposite plate surface **719***c* of the light guide plate **719** due to the deformation portion **39**, which forms the second light guide plate non-support portion **40**, and light from the LEDs **716** is less likely to reflect off the extended reflection portion **720***a* and less likely to directly enter through the opposite plate surface **719***c*. Thereby, a bright region becomes hard to be locally generated in the light exit surface **719***a*, thus luminance unevenness is hard to be caused.

According to the present embodiment, as described above, the light guide plate non-support portion **730** includes the reinforcement rib (recessed portion) **38** that is formed by recessing the bottom plate portion **714***a* so as to be farther away from the light guide plate **719**, and the deformation portion **39** adjacent to the reinforcement rib **38** in the bottom plate portion **714***a* and having a distance from the opposite plate surface **719***c* of the light guide plate **719** relatively greater than a distance between the opposite plate surface **719***c* of the light guide plate **719** and the light guide plate support portion **731**. If the reinforcement rib **38** that is recessed so as to be farther away from the light guide plate **719** is formed in the bottom plate portion **714***a*, the deformation portion **39** may be generated by warpage or bending in the bottom plate portion **714***a* and such a deformation portion **39** is in a portion of the bottom plate portion **714***a* adjacent to the reinforcement rib **38**. Thus, for example, even if the reinforcement rib **38** is formed not overlapping with the extended reflection portion **720***a* of the reflection sheet **720**, the deformation portion **39** may be formed in a portion of the bottom plate portion **714***a* overlapping with the extended reflection portion **720***a* of the reflection sheet **720**. The deformation portion **39** is away from the opposite plate surface **719***c* of the light guide plate **719** with a distance relatively greater than a distance between the opposite plate surface **719***c* of the light guide plate **719** and the light guide plate support portion **731**. In the reflection sheet **720** having the cutout portion **732**, a portion of the extended reflection portion **720***a* is less likely to be separated from the opposite plate surface **719***c* of the light guide plate **719** due to the deformation portion **39**, which is the light guide plate non-support portion **730**, and light from the LEDs **716** is less likely to reflect off the extended reflection portion **720***a* and is less likely to directly enter through the opposite plate surface **719***c*, thus making it possible to effectively suppress luminance unevenness.

<Embodiment 9>

Embodiment 9 of the invention will be described with FIG. **20** or FIG. **21**. Embodiment 9 indicates a bottom plate portion **814***a* of a chassis **814** in which a board attachment portion **41** is provided compared to Embodiment 1 described above. Note that, overlapping description for structures, actions, and effects similar to those of Embodiment 1 described above will be omitted.

As illustrated in FIG. **20** and FIG. **21**, the bottom plate portion **814***a* forming the chassis **814** according to the present embodiment is provided with the board attachment portion (recessed portion) **41** so as to be partially recessed to the rear side. The board attachment portion **41** is formed integrally with the bottom plate portion **814***a* by performing drawing, and has a cross-sectional shape such that the bottom portion is disposed behind the bottom plate portion **814***a* and the bottom portion has a substantially trapezoid shape larger than that of the reinforcement rib **38** described in Embodiment 8 described above. A board **42** disposed behind the bottom plate portion **814***a* is attached to the board attachment portion **41** by a screw member SM. The board **42** includes a panel driving circuit board for driving a liquid crystal panel **811**, an LED driving circuit board for supplying power to LEDs **816**, and the like. Note that, in the present embodiment, provided is a configuration in which the chassis-side opening **28** described in Embodiment 1 above is not formed in the chassis **814**.

When the board attachment portion **41** as described above is formed in the bottom plate portion **814***a*, according to processing thereof, a deformation portion **839** may be formed in a portion of the bottom plate portion **814***a* adjacent to the board attachment portion **41** by warpage or bending, and the deformation portion **839** is likely to be formed particularly at a position closer to an outer edge of the bottom plate portion **814***a* with respect to the board attachment portion **41**. If the deformation portion **839** is formed at the position closer to the outer end of the bottom plate portion **814***a* with respect to the board attachment portion **41**, the deformation portion **839** is likely to be arranged so as to overlap with an extended reflection portion **820***a* of the reflection sheet **820** in a plan view. The deformation portion **839** has a distance from an opposite plate surface **819***c* of a light guide plate **819** relatively longer than a distance between the opposite plate surface **819***c* of the light guide plate **819** and a light guide plate support portion **831**, and thus the deformation portion **839** and the board attachment portion **41** constitute a light guide plate non-support portion **830** which does not support the light guide plate **819**. On the other hand, in the present embodiment, a cutout portion **832** of the reflection sheet **820** is formed in a range of the extended reflection portion **820***a* overlapping with the deformation portion **839** included in the light guide plate non-support portion **830** in a plan view. Thereby, a portion of the extended reflection portion **820***a* is less likely to be separated from the opposite plate surface **819***c* of the light guide plate **819** due to the deformation portion **839** included in the light guide plate non-support portion **830**, and light from the LEDs **816** is less likely to reflect off the extended reflection portion **820***a* and less likely to directly enter through the opposite plate surface **819***c*. Thereby, a bright region is hard to be locally generated in the light exit surface **819***a*, thus luminance unevenness is hard to be caused.

As described above, according to the present embodiment, the board **42** which is provided so as to be opposite to the light guide plate **819** with respect to the bottom plate portion **814***a* and is attached to the board attachment portion (recessed portion) **41**. This makes it possible to attach the board **42**, which is provided so as to be opposite to the light guide plate **819** with respect to the bottom plate portion **814***a*, by using the board attachment portion **41**. In other words, even if the deformation portion **839** may be formed in the bottom plate portion **814***a* according to the formation of the board attachment portion **41** in the bottom plate portion **814***a* in order to attach the board **42**, the reflection sheet **820** including the cutout portion **832** effectively suppresses luminance unevenness resulting from the deformation portion **839**.

<Embodiment 10>

Embodiment 10 of the invention will be described with FIG. **22**. Embodiment 10 indicates a double edge type backlight device **912** which is changed from one in Embodiment 1 described above. Note that, overlapping description for structures, actions, and effects similar to those of Embodiment 1 described above will be omitted.

In the backlight device **912** according to the present embodiment, as illustrated in FIG. **22**, two sets of LED units LU are arranged so as to hold a light guide plate **919** from both sides in a short-side direction (Y-axis direction), so that both long-side end surfaces of the light guide plate **919** are light entrance surfaces **919***b*. Accordingly, only both short-side end surfaces of the light guide plate **919** form end surfaces not facing LEDs which do not face LEDs **916**. Each of the LED units LU is attached to each of the both long-side ends of a chassis **914**, and accordingly, chassis-side openings **928** are formed so that one of them is disposed so as to cross a first side plate portion **914***b* from one long-side end of the bottom plate portion **914***a*, and the other of them is disposed so as to cross a second side plate portion **914***c* from the other long-side end of the bottom plate portion **914***a*. The second side plate portion **914***c* is formed so as to protrude toward a rear side from the bottom plate portion **914***a* similarly to the first side plate portion **914***b*. In a reflection sheet **920**, each of both long-side ends thereof serves as an extended reflection portion **920***a*, and each cutout portion **932** is formed at a portion overlapping with the chassis-side opening **928** in a plan view (including the extended reflection portion **920***a*).

<Embodiment 11>

Embodiment 11 of the invention will be described with FIG. **23** or FIG. **24**. Embodiment 11 indicates one in which the heat dissipation member **18** is omitted and a chassis **1014** has a different structure, compared to Embodiment 1 described above. Note that, overlapping description for structures, actions, and effects similar to those of Embodiment 1 described above will be omitted.

As illustrated in FIG. **23**, in the chassis **1014** according to the present embodiment, an LED board housing portion **43** in which an LED board **1017** is housed is provided at one long-side end of a bottom plate portion **1014***a*. The LED board housing portion **43** includes a first side portion **43***a* that protrudes toward a rear side from the long-side end of the bottom plate portion **1014***a*, a bottom portion **43***b* that extends so as to be farther away from the bottom plate portion **1014***a* with respect to an protruding end of the first side portion **43***a* along the Y-axis direction, and a second side portion **43***c* that upstands to the front side from an extending end of the bottom portion **43***b*. The LED board **1017** on which LEDs **1016** are mounted is housed in an inner space of the LED board housing portion **43**. The LED board **1017** is attached so as to be in contact with the second side portion **43***c* which forms the LED board housing portion **43**.

As illustrated in FIG. **24**, the bottom plate portion **1014***a* and the LED board housing portion **43** include a chassis-side opening **1028** through which a board-side connector **1022** and a wiring-side connector **1023** are exposed to outside on a rear side thereof. The chassis-side opening **1028** is formed in a range over entire areas of the first side portion **43***a* and the bottom portion **43***b* of the LED board housing portion **43** in the Y-axis direction and a long-side end of the bottom plate portion **1014***a*, which is adjacent to the LED board housing portion **43**. In such a configuration, the chassis-side opening **1028**, which is a light guide plate non-support portion **1030**, is arranged to overlap with a part of an extended reflection portion **1020***a* of a reflection sheet **1020**. On the other hand, in the present embodiment, a cutout portion **1032** formed in the reflection sheet **1020** is formed in a range of the extended reflection portion **1020***a* overlapping with the chassis-side opening **1028** forming the light guide plate non-support portion **1030** in a plan view. Thereby, a portion of the extended reflection portion **1020***a* is less likely to be separated from an opposite plate surface **1019***c* of a light guide plate **1019** due to the chassis-side opening **1028** that forms the light guide plate non-support portion **1030**, and light from the LEDs **1016** is less likely to reflect off the extended reflection portion **1020***a* and is less likely to directly enter through the opposite plate surface **1019***c*. Thereby, a bright region is hard to be locally generated in a light exit surface **1019***a*, thus luminance unevenness is hard to be caused.

<Embodiment 12>

Embodiment 12 of the invention will be described with FIG. **25**. Embodiment 12 indicates one in which a reinforcement rib **1138** described in Embodiment 8 above is formed in a bottom plate portion **1114***a* described in Embodiment 11 above. Note that, overlapping description for structures, actions, and effects similar to those of Embodiments 8 and 11 described above will be omitted.

As illustrated in FIG. **25**, the bottom plate portion **1114***a* forming a chassis **1114** according to the present embodiment is provided with the reinforcement rib **1138** for reinforcing the bottom plate portion **1114***a*. As the reinforcement rib **1138** is formed, a deformation portion **1138** is formed in the bottom plate portion **1114***a*, and the deformation portion **1139** forms a second light guide plate non-support portion **1140**, which does not support a light guide plate **1119**, with the reinforcement rib **1138**. On the other hand, in the present embodiment, a cutout portion **1132** formed in a reflection sheet **1120** is formed in a range of an extended reflection portion **1120***a* overlapping with the deformation portion **1139** included in the second light guide plate non-support portion **1140** in a plan view. Thereby, a portion of the extended reflection portion **1120***a* is less likely to be separated from an opposite plate surface **1119***c* of a light guide plate **1119** due to the deformation portion **1139** included in the second light guide plate non-support portion **1140**, and light from LEDs **1116** is less likely to reflect off the extended reflection portion **1120***a* and is less likely to directly enter through the opposite plate surface **1119***c*. Thereby, a bright region is hard to be locally generated in a light exit surface **1119***a*, thus luminance unevenness is hard to be caused.

<Embodiment 13>

Embodiment 13 of the invention will be described with FIG. **26**. Embodiment 13 indicates one in which a board attachment portion **1241** described in Embodiment 9 above is formed in a bottom plate portion **1214***a* described in Embodiment 11 above. Note that, overlapping description for structures, actions, and effects similar to those of Embodiments 9 and 11 described above will be omitted.

As illustrated in FIG. **26**, the board attachment portion **1241** to which a board **1242** disposed behind the bottom plate portion **1214***a* is attached is formed in the bottom plate portion **1214***a* forming a chassis **1214** according to the present embodiment. As the board attachment portion **1241** is formed, a deformation portion **1239** is formed in the bottom plate portion **1214***a*, and the deformation portion **1239** and the board attachment portion **1241** constitute a light guide plate non-support portion **1230** that does not support a light guide plate **1219**. On the other hand, in the present embodiment, a cutout portion **1232** formed in a reflection sheet **1220** is formed in a range of an extended reflection portion **1120***a*, which overlaps with the deformation portion **1239** forming the light guide plate non-support portion **1230** in a plan view. Thereby, a portion of an extended reflection portion **1220***a* is less likely to be separated from an opposite plate surface **1219***c* of the light guide plate **1219** due to the deformation portion **1239** included in the light guide plate non-support portion **1230**, and light from LEDs **1216** is less likely to reflect off the extended reflection portion **1220***a* and is less likely to directly enter through the opposite plate surface **1219***c*. Thereby, a bright region is hard to be locally generated in a light exit surface **1219***a*, thus luminance unevenness is hard to be caused.

<Embodiment 14>

Embodiment 14 of the invention will be described with FIG. **27**. Embodiment 14 indicates one in which a chassis **1314** has a structure which is further changed compared to one in Embodiment 11 described above. Note that, overlapping description for structures, actions, and effects similar to those of Embodiment 11 described above will be omitted.

In the chassis **1314** according to the present embodiment, as illustrated in FIG. **27**, a first side plate portion **1314***b* is formed so as to upstand toward a front side from an end of a bottom plate portion **1314***a* on an LED board **1317** side, and the LED board **1317** is attached so as to be in contact with the first side plate portion **1314***b*. A chassis-side opening **1328** which is formed in the bottom plate portion **1314***a* has an outer opening edge formed so as to be flush with a surface of the first side plate portion **1314***b* to which the LED board **1317** is attached, and is thus allowed to pass a protrusion for power feeding **1317***b* of the LED board **1317** and a board-side connector **1322** therethrough. The protrusion for power feeding **1317***b* and board-side connector **1322** are disposed so as to protrude to outside on a rear side of the bottom plate portion **1314***a* through the chassis-side opening **1328**, and a wiring-side connector **1323** is allowed to be connected to the board-side connector **1322** by fitting with each other.

<Other Embodiments>

The invention is not limited to the embodiments explained in the aforementioned description and drawings, and the following embodiments are included in a technical scope of the invention, for example.

(1) As a modified example of Embodiment 3 described above, as illustrated in FIG. **28**, it may be configured so that a straight portion **1434** which forms a cutout edge of a cutout portion **1432** is flush with a light entrance surface **1419***a* of a light guide plate **1419**.

(2) As a modified example of Embodiment 4 described above, as illustrated in FIG. **29**, it may be configured so that a portion of a circular arc portion **1535** forming a cutout edge of a cutout portion **1532**, which has a longest distance from LEDs **1516** in the Y-axis direction, is flush with a light entrance surface **1519***b* of a light guide plate **1519**.

(3) Configurations described in Embodiments 2 and 7 above may be, of course, combined appropriately with ones described in Embodiments 5, 6 and 8 to 14 above.

(4) A configuration described in Embodiment 7 above may be, of course, combined appropriately with ones described in Embodiments 3 and 4 above.

(5) Though Embodiment 8 above indicates a case where the deformation portion is formed in the end of the bottom plate portion as the reinforcement rib is formed, even when such a reinforcement rib is not formed, the deformation portion is formed in some cases due to generation of warpage or bending at the end of the bottom plate portion, and also when such a deformation portion is formed, by forming a cutout portion of a reflection sheet, it is possible to suppress luminance unevenness resulting from the deformation portion.

(6) In addition to each embodiment described above, plan shapes of the cutout portion and the cutout edge thereof may

be changed appropriately. Specifically, the plan shape of the cutout portion may be aright angled triangle, a right angled triangle, an inequilateral triangle, an uneven-leg trapezoid, an ellipse or the like.

(7) In addition to each embodiment described above, arrangement in the X-axis direction, the installation number of cutout portions in the reflection sheet, and the like may be changed appropriately. A formation range in the X-axis direction and a formation range in the Y-axis direction in the cutout portion may be changed appropriately. Specifically, for example, it may be configured so that the cutout edge in the cutout portion, which has a longest distance from the LEDs, is flush with an end of the light guide plate non-support portion. Further, a formation range in which the cutout portion overlaps with an entire area of the light guide plate non-support portion may be provided. When it is configured so that the cutout edge of the cutout portion intersects with the light entrance surface of the light guide plate in a plan view, the intersection part may be arranged so as to be disposed in and overlap with the light guide plate non-support portion, and further, the intersection part may be arranged so as to intersect with an edge of the light guide plate non-support portion.

(8) Embodiments 8 and 12 above indicate a case where the reinforcement rib is provided in the chassis in which the chassis-side opening is formed, the invention may be applied also to a configuration in which the reinforcement rib is provided in a chassis in which a chassis-side opening is not formed as Embodiments 9 and 13 above.

(9) Though Embodiments 8, 9, 12 and 13 above indicate a case where the reinforcement rib or the board attachment portion which is a recessed portion is arranged so as not to overlap with the extended reflection portion of the reflection sheet in a plan view, arranging the reinforcement rib or the board attachment portion which is the recessed portion so as to overlap with the extended reflection portion of the reflection sheet in a plan view is also included in the invention.

(10) Though each embodiment above indicates a case where the wiring-side connector is fitted with the board-side connector along the X-axis direction, a direction in which the wiring-side connector is fitted with the board-side connector may be matched with the Z-axis direction or matched with the Y-axis direction.

(11) Though each embodiment above exemplifies a configuration in which the board-side connector is provided in the LED board, it may be configured so that when the board side connector is omitted, for example, a terminal portion for power feeding is provided in the protrusion for power feeding of the LED board and the wiring-side connector is attached to the protrusion for power feeding, the wiring-side connector is electrically connected to the terminal portion for power feeding.

(12) Though each embodiment above indicates a case where LED groups belonging to each group are connected in parallel by each wiring pattern formed in the LED board, it may be configured so that the LED groups belonging to each group are connected in series by each wiring pattern.

(13) Though each embodiment above indicates a case where two lines of wiring patterns are formed in the LED board, three or more lines of wiring patterns or only one line of wiring pattern may be formed in the LED board.

(14) Though each embodiment above indicates a configuration in which the protrusion for power feeding is connected to the center position in the length direction of the LED mounting portion, a position at which the protrusion for power feeding is connected to the LED mounting portion may be changed appropriately, so that it may be configured so that the protrusion for power feeding is connected to, for example, an end of the LED mounting portion in the length direction. In this case, as arrangement of the protrusion for power feeding is changed, arrangement of the chassis-side opening, the heat dissipation member-side opening, and the cutout portion of the reflection sheet may be changed.

(15) Though each embodiment above indicates a configuration in which only one protrusion for power feeding is connected to the LED mounting portion, it may be configured so that a plurality of protrusions for power feeding are connected to the LED mounting portion. In this case, as the installation number of protrusions for power feeding is changed, the installation number of chassis-side openings, heat dissipation member-side openings, and cutout portions of the reflection sheet may be changed.

(16) Though each embodiment above indicates a case where the chassis-side opening and the heat dissipation member-side opening are formed in a range of overlapping with entire areas of the board-side connector and the wiring-side connector in a plan view, forming the chassis-side opening and the heat dissipation member-side opening in a range of overlapping with only a part of the board-side connector and the wiring-side connector in a plan view is also included in the invention. Further, forming the chassis-side opening and the heat dissipation member-side opening in a range of not overlapping with the board-side connector or the wiring-side connector in a plan view is also included in the invention.

(17) Though each embodiment above exemplifies the liquid crystal display device including a single edge type or double edge type backlight device in which the LED board (LED, LED unit) is disposed facing a long-side end of the light guide pate, the invention may be applied also to a liquid crystal display device including a single edge type or double edge type backlight device in which the LED board is disposed facing a short-side end of the light guide plate. Additionally, the invention may be applied also to one disposing the LED board facing any three facing surfaces of the light guide plate or one disposing the LED board facing all end surfaces of the light guide plate.

(18) Though each embodiment above indicates a case where the first frame is made of metal, the first frame may be made of synthetic resin. Similarly, the second frame may be made of metal.

(19) Though each embodiment above exemplifies a case where two LED boards (LED units) are arranged so as to face one end surface of the light guide plate, one LED board or three or more LED boards may be arranged so as to face one end surface of the light guide plate.

(20) Though each embodiment above indicates a case where the LED is used as the light source, other light sources such as organic EL, a cold-cathode tube and a hot-cathode tube may be used.

(21) Though each embodiment above exemplifies a case where the liquid crystal panel has color sections of a color filter in three colors i.e., R, G and B, color sections of four or more colors may be used.

(22) Though TFT is used as a switching component of the liquid crystal display device in each embodiment above, the invention may be applied also to a liquid crystal display device using a switching component other than the TFT (for example, Thin Film Diode (TFD)), and may be applied also to a liquid crystal display device which performs monochrome display in addition to a liquid crystal display device which performs color display.

(23) Though each embodiment above exemplifies the liquid crystal display device using the liquid crystal panel as

a display panel, the invention may be applied also to a display device using a display panel of other type.

(24) Though each embodiment above exemplifies the television device including a tuner, the invention may be also applied to a display device not including a tuner. Specifically, the invention may be applied also to a liquid crystal display device used as an electronic signboard (digital signage) or an electronic blackboard.

REFERENCE SIGNS LIST

10 liquid crystal display device (display device)
11 liquid crystal panel (display panel)
12, **912** backlight device (lighting device)
14, **714**, **814**, **914**, **1014**, **1114**, **1214**, **1314** chassis
14*a*, **714***a*, **814***a*, **914***a*, **1014***a*, **1114***a*, **1214***a*, **1314***a* bottom plate portion
16, **116**, **216**, **316**, **416**, **516**, **616**, **716**, **816**, **916**, **1016**, **1116**, **1216**, **1316**, **1516** LED (light source)
17, **1017**, **1317** LED board (light source board)
17*a* LED mounting portion (light source mounting portion)
17*b*, **1317***b* protrusion for power feeding
19, **119**, **219**, **619**, **719**, **819**, **919**, **1019**, **1119**, **1219**, **1419**, **1519** light guide plate
19*a*, **719***a*, **819***a*, **1019***a*, **1119***a*, **1219***a* light exit surface
19*b*, **119***b*, **219***b*, **619***b*, **919***b*, **1419***b*, **1519***b* light entrance surface
19*c*, **119***c*, **619***c*, **719***c*, **819***c*, **1019***c*, **1119***c*, **1219***c* opposite plate surface
20, **120**, **220**, **320**, **420**, **520**, **620**, **720**, **820**, **920**, **1020**, **1120**, **1220** reflection sheet (reflection member)
20*a*, **120***a*, **220***a*, **620***a*, **720***a*, **820***a*, **920***a*, **1020***a*, **1120***a*, **1220***a* extended reflection portion
22, **1022**, **1322** board-side connector (power feed portion)
23, **1023**, **1323** wiring-side connector (power feed portion)
28, **128**, **228**, **628**, **928**, **1028**, **1328** chassis-side opening (opening)
30, **130**, **230**, **630**, **730**, **830**, **1030** light guide plate non-support portion
31, **731**, **831** light guide plate support portion
32, **132**, **232**, **332**, **432**, **532**, **632**, **732**, **832**, **1032**, **1132**, **1232**, **1432**, **1532** cutout portion
38, **1138** reinforcement rib (recessed portion)
39, **839**, **1139**, **1239** deformation portion
40, **1140** second light guide plate non-support portion (light guide plate non-support portion)
41, **1241** board attachment portion (recessed portion)
42, **1242** board TV television device

The invention claimed is:

1. A lighting device, comprising:
a light source;
a light guide plate having a plate shape and including at least one edge surface as a light entrance surface through which light from the light source enters, one plate surface as a light exit surface through which the light exits the light guide plate, and another plate surface as an opposite plate surface being opposite to the light exit surface;
a chassis having a bottom plate portion that includes a light guide plate support portion supporting the light guide plate from a side of the opposite plate surface and a light guide plate non-support portion not supporting the light guide plate from the side of the opposite plate surface; and
a reflection member that is disposed between the opposite plate surface of the light guide plate and the bottom plate portion of the chassis and reflects the light travelling through the light guide plate toward the light exit surface, the reflection member having an extended reflection portion that extends closer to the light source than the light entrance surface of the light guide plate and having a cutout portion that is formed by cutting out at least a part of a portion of the extended reflection portion overlapping with the light guide plate non-support portion.

2. The lighting device according to claim **1**, wherein the reflection member includes the cutout portion having a cutout edge that is a flush with the light entrance surface or opposite to the light source with respect to the light entrance surface.

3. The lighting device according to claim **2**, wherein the cutout edge of the cutout portion is opposite to the light source with respect to the light entrance surface.

4. The lighting device according to claim **2**, wherein
the light guide plate non-support portion has an edge that is opposite to the light source with respect to the light entrance surface, and
the cutout edge of the cutout portion of the reflection member is closer to the light entrance surface than the edge of the light guide plate non-support portion.

5. The lighting device according to claim **1**, wherein the cutout portion of the reflection member has an opening size in a direction along the light entrance surface continuously decreasing as is farther away from the light source.

6. The lighting device according to claim **5**, wherein the cutout portion of the reflection member has a formation range in the direction along the light entrance surface greater than a formation range of the light guide plate non-support portion in the direction along the light entrance surface.

7. The lighting device according to claim **1**, wherein the cutout portion of the reflection member has a formation range in the direction along the light entrance surface greater than a formation range of the cutout portion extending in a direction from the light source to the light entrance surface.

8. The lighting device according to claim **1**, wherein the light guide plate non-support portion includes an opening that is in the bottom plate portion.

9. The lighting device according to claim **8**, further comprising:
a light source board on which the light source is mounted; and
a power feed portion feeding power to the light source on the light source board, wherein
the power feed portion is exposed to outside through the opening of the bottom plate portion.

10. The lighting device according to claim **9**, wherein
the light source board has a light source mounting portion on which the light source is mounted, and a protrusion for power feeding protruding from the light source mounting portion in a direction from the light exit surface to the opposite plate surface, the protrusion for power feeding having the power feed portion thereon, and
the power feed portion and the protrusion for power feeding are exposed to outside through the opening of the bottom plate portion.

11. The lighting device according to claim **10**, wherein the opening of the bottom plate portion has an opening edge that is opposite to the light source with respect to the light entrance surface.

12. The lighting device according to claim **1**, wherein the light guide plate non-support portion includes a recessed portion that is recessed in the bottom plate portion so as to be farther away from the light guide plate, and a deformation portion that is adjacent to the recessed portion in the bottom plate portion, the deformation portion being away from the opposite plate surface of the light guide plate by a distance that is relatively greater than a distance between the opposite plate surface of the light guide plate support portion and the light guide plate support portion.

13. The lighting device according to claim **12**, further comprising a board that is opposite to the light guide plate with respect to the bottom plate portion and is attached to the recessed portion.

14. A display device comprising:

the lighting device according to claim **1**; and

a display panel which displays an image by using light from the lighting device.

15. A television device comprising the display device according to claim **14**.

* * * * *